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BULLETIN

OF THE

NORTH CAROLINA BOARD OF HEALTH.

Published Monthly at the Office of the Secretary of the Board, at Raleigh, N. C.

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VOL. XI.

APRIL, 1896.

No. 1.

Meeting of the Board of Health.

The regular annual meeting of the Board will occur at the same time and place as that of the State Medical Society, which is to say at Winston on the 12th proximo. According to the custom of years the Conjoint Session of the Board with the Society will be called to order at 12 M., on Wednesday the 13th. This meeting, for a general discussion of sanitary matters by the leading men in the Profession in the State, is one of real importance and should be well attended. We hope especially to see a large number of the County Superintendents of health, as well as other health officers, present that we may compare notes and prepare for "a strong pull, a long pull, and a pull altogether" for the cause of hygiene in North Carolina.

Malaria and its Prevention in Eastern Carolina.

JULIAN M. BAKER, M. D., OF TARBORO.

(Read before the Washington Health Conference.)

The prevention of Malaria is of importance to the economist, as well as to the sanitarian. It is of special importance to us in Eastern Carolina, because, in some form, it exists in nearly every locality, extending far into the Piedmont Section; because the mortality is greatly exaggerated in the minds of non-residents, and because there is a means of prevention which, if known and carried out, will surely eradicate it. It is constantly decreasing in New York, Philadelphia, Baltimore and most of the large cities as the knowledge of its nature and cause has become better understood, until at present it prevails to the greatest extent in low, marshy, country districts, principally in Mississippi, Arkansas, Louisiana and Texas. In Europe it has constantly

decreased until at present its habitation is confined principally to Southern Russia and parts of Italy.

The influence of soil and climate in the production of Malaria is universally recognized, but as yet it is impossible to determine whether certain localities are malarial by any means other than by observing the effect which residence in those localities produces upon the Caucasian race. Low, marshy lands with an abundance of vegetable matter, heat and moisture, and summer and autumn, are favorable conditions for sustaining and developing the virus.

Malaria may be defined to be an "Infectious disease, always accompanied by the haematozoa of Lavan and characterized by fever of an intermittent or remittent type or by a chronic cachexia with anaemia and enlarged spleen." What the virus consists of occupied the attention for a long time, but after the observation of Klebs and Crudeli in 1879, additional interest was manifested in investigating it. The experiments of Lavan in 1880 and their subsequent confirmation by Marchiafava and others in Italy, by Councilman, Osler and Joseph Jones in America, and more recently by French, German and English scientists, are conclusive that it is a parasite and belongs to the haematozoa. No observer, says Osler, who has undertaken the proper study of the blood in Malaria has failed to recognize the parasite. Its nature and affinities are not definitely determined, but investigators in England, France, America, Italy and India are unanimous in the opinion that these bodies are always present in Malaria and that they disappear simultaneously with the administration of quinine. The changes produced in the blood by them are sufficient to account

for the symptoms and morbid anatomy. The transformation of the haemoglobin by the plasmodium results in the pigmentation which is so characteristic. The amoeba passes through a cycle of existence, during which toxic substances are developed, possessing the property of causing a necrosis of the red corpuscles, resulting in anaemia.

How the parasite enters or leaves the body; how and where it is propagated; whether it develops in some aquatic plant or animal, is not determined; but the study of its life as revealed by clinical experience leads to certain conclusions which future investigation will doubtless confirm.

The term Malaria means "bad air". This indicates the long-accepted origin of the disease, and indicates the avenue of entrance to be the respiratory tract, or the skin. If a micro-organism is the cause, as is now conceded, and its habitat is fermenting organic matter in the soil, it is certainly a reasonable conclusion to arrive at that the entrance could be more readily effected through the mouth and the digestive tract than by either lungs or skin. It is well known that the system succumbs more readily to malarial influences while fasting; doubtless this is explained by the fact that the micro-organism has to reach the alkaline intestinal tract before developing its pestilential manifestations, and this is more easily done through an empty stomach than a full one, with the protective influence of active gastric digestion. If it is true that the usual avenue of entrance is the mouth, the entrance into the blood must be made through the intestinal tract, and the prevention of the disease and its total eradication is brought within the region of possibilities. In-

stead of contending with a hydra-headed micro-organism pervading every breath of air we breathe, lurking in every evening breeze, whose whereabouts we know nothing of, we would have a simple little parasite trying to get into the intestines through an empty stomach.

The topographical and meteorological conditions in Eastern Carolina furnish a most suitable environment for the life of the malarial germ; so our effort must be directed primarily to the prevention of the development of the germ outside of the body, and then its entrance into the body. Notwithstanding the fact that Sternberg failed to find the germ in the marsh mud of Louisiana, the low marshy lands of the Roman Campagna, the bottom lands of Mississippi, Arkansas and Alabama, and the low lands of our section are too familiar as favorite localities for the worst forms of Malaria to controvert the fact that heat, moisture and decomposing vegetable matter constitute the favorable environment which we must first remove in order to prevent the germ's development. It is inexplicable at present that these marshes and low lands have been known to become healthy without apparent change in previously favorable conditions for development; it is highly probable, though, that the germ will never disappear unless the environment is changed. Clearing, draining and cultivation will accomplish this in a measure. Oxygen being necessary, as claimed by Crudeli, to the existence of the germ, close sodding with grass after drainage is the best sanitary cultivation. The Carolina poplar or cottonwood tree, eucalyptus and several others, have gained a reputation as absorbers of the virus from miasmatic

atmosphere; doubtless one tree is as good as another for this purpose, and the claim of those mentioned is referred to only to deny it absolutely. The usual avenue of entrance being the intestinal tract, although a respectable minority still hold that it is the lungs and skin, how is the germ to be prevented from entering the system? Bartley of Brooklyn has recently found the malarial organisms in the crinking water from the source of common supply of the city of Brooklyn, which only serves to establish what was already accepted—that water is the most efficient carrier, and when containing the surface washings charged with decomposing organic matter was a satisfactory abiding place and furnished a suitable pabulum, not only for malarial, but many other pathogenic organisms.

In Eastern Carolina the water supply is principally from shallow wells, ten to twenty feet deep, in wet seasons the water rising very near the surface level. The question of prevention resolves itself into one of purifying the water from shallow wells, or getting purer water from some other source. By boiling the well water all vitality is destroyed and dead organic matter is harmless. This is the only safe rule if any well water is to be used. The custom prevails in some malarial sections to boil enough water in the morning for the day's consumption. After boiling it should be placed in a porcelain cooler and closed up. By using only boiled water the malarial attacks may be reduced to a minimum. It is a matter of common observation that, in families using boiled water, those who, for some reason, do not drink it have been known to have malarial attacks while the others escaped.

Purer and better water can be ob-

tained from deep bored or driven wells and cisterns. When proper care is exercised in collecting, no better water can be procured than cistern water. The Board of Health has done great good in disseminating information in regard to bored wells. They are coming into more general use, and wherever used Malaria prevails to less extent; but the pump gets out of order, is troublesome to repair, and doubtless too, after a while, unless very deep, these wells become contaminated and their use is discontinued. Artesian wells, where practicable, will fill all the requirements of pure drinking water, except in very rare instances. Their use is beginning to attract attention everywhere. Experimental wells are being sunk in many places, and no good reason exists why artesian wells should not be generally used in our section.

Eastern Carolina needs purer drinking water. This can be obtained by boiling ordinary well water, by using cistern water properly collected, deep bored or artesian wells. Let our people realize this and put it into practical operation, and Eastern Carolina becomes at once the healthiest, the richest and the grandest section of our Commonwealth.

Summary of Reports from County Superintendents of Health, for March, 1896, (eighty-one counties reporting).

In the blanks on which these reports are made the following items are called for:

1. The number of cases of small-pox, measles, whooping cough, scarlatina, diphtheria, typhoid fever, pernicious malarial fever, hemorrhagic malarial fever, yellow fever and cholera which

have occurred in the county during the past month.

2. The diseases which have been prevalent in the county, and in what parts.

3. Epidemics among domestic animals.

4. Remarks as to special unsanitary conditions in the county.

In few counties do physicians generally report these details to the Superintendent, though furnished with blanks for that purpose, and in most cases he has to depend upon himself alone in making his report.

Details as to the jails, houses of correction, and county homes are also given in these reports and will be found tabulated on other pages.

ALAMANCE—Dr. R. A. Freeman, Burlington. Measles (150) in nearly all parts. A few cases of typhoid fever.

ALEXANDER—Dr. T. F. Stevenson, Taylorsville. No diseases to report.

ALLEGHANY—Dr. Robt. Thompson, Sparta. Pneumonia in the western part. Little sickness.

ANSON—No report.

ASHE—Dr. L. C. Gentry, Jefferson. No diseases to report.

BEAUFORT—Dr. Joshua Tayloe, Washington. La grippe and pneumonia in nearly all parts and are increasing. The jail has been renovated while the prisoners are out at work on the county roads.

BERTIE—Dr. H. V. Dunstan, Windsor. One case of typhoid fever. Bronchitis and pneumonia in several parts. An epidemic of hog cholera.

BLADEN—Dr. Newton Robinson, Elizabethtown. A few cases of measles. Mild influenza in all parts.

BRUNSWICK — Dr. D. I. Watson, Southport. No diseases to report. The county home is dilapidated. The sills of the piazza are rotten, some of the piazza supports have fallen out, the chimneys are cracked from top to bottom, are liable to fall and smoke terribly.

BUNCOMBE—Dr. E. C. Starnes, Asheville. Mumps in nearly all parts.

BURKE—Dr. J. L. Laxton, Morganton. Measles (21), whooping cough (10) and colds.

CABARRUS—Dr. Robert S. Young, Concord. Epidemic of measles (61) and diphtheria in all parts. Two cases of diphtheria and one each of typhoid and pernicious malarial fever.

CALDWELL—Dr. A. A. Kent, Lenoir. The epidemic of measles has somewhat abated. No new sickness to report.

CAMDEN—No Board of Health.

CARTERET—Dr. George N. Ennett, Beaufort. Influenza and broncho-catarrrhal troubles in some parts. The jail is rather dilapidated and poorly constructed, and the present financial embarrassment of the county will not admit of any decided improvement.

CASWELL—Dr. W. O. Spencer, Yanceyville. Measles, whooping cough and catarrhal fever in various sections.

CATAWBA—Dr. D. McD. Yount, Newton. Measles epidemic. Catarrhal affections of all kinds in all parts.

CHATHAM—No report.

CHEROKEE—Dr. J. F. Abernathy, Murphy. There have been 400 cases of measles, but the disease has abated. Pneumonia in various parts. Hog cholera much less. The burned court house will be rebuilt.

CHOWAN — Dr. R. H. Winborne, Rockyhook. Two cases of scarlatina. Bronchial and catarrhal troubles in all parts. Less pneumonia than for many years. Some hog cholera but not very virulent; it has not been absent from this county for two or three years. All the physicians of the county promised to make reports but have failed to do so as yet.

CLAY—Dr. W. E. Sanderson, Hayesville. No report.

CLEVELAND—Dr. O. P. Gardner, Shelby. Measles (now abating), whooping cough in many parts.

COLUMBUS—Dr. I. Jackson, Whiteville. Two cases of measles. Influenza in some parts. Hog cholera in some parts.

CRAVEN—Dr. J. W. Duguid, Newbern. No report.

CUMBERLAND—Dr. J. Vance McGougan. Scarlatina (24), measles and mumps in Fayetteville.

CURRITUCK—No Board of Health.

DARE—Dr. W. B. Fearing, Manteo. No diseases to report.

DAVIDSON—Dr. John Thames, Lexington. Measles (50) diminishing. There have been many complications but few deaths. Pneumonia and malarial fever in all parts.

DAVIE—Dr. James McGuire, Mocksville. Measles and pneumonia over the county.

DUPLIN—Dr. J. C. Grady. Twelve cases of measles and three of typhoid fever. Pneumonia in all parts.

DURHAM—Dr. John M. Manning, Durham. Mumps and measles in all parts.

EDGECOMBE—Dr. Donald Williams, Tarboro. Catarrhal troubles and

whooping cough in all parts. Three cases of pneumonia.

FORSYTH—Dr. E. F. Strickland, Bethania. Measles in all parts heard from.

FRANKLIN—Dr. E. S. Foster, Louisville. Very little sickness.

GASTON—Dr. J. H. Jenkins, Dallas. Catarrhal fever and pneumonia in different parts. Mumps in Gastonia. One case of typhoid fever.

GRAHAM—No Board of Health.

GRANVILLE—Dr. W. O. Baskerville, Oxford. La grippe, measles, whooping cough and mumps in many parts.

GREENE—Dr. Joseph E. Grimsley, Snow Hill. La grippe, bronchitis and pneumonia in all parts.

GUILFORD—Dr. W. J. Richardson, Greensboro. No diseases reported.

HALIFAX—Dr. I. E. Green, Weldon. Thirteen cases of measles. Pulmonary troubles to a limited extent in some parts.

HARNETT—Dr. J. F. McKay, Dickinson, reporter. Measles (5), pneumonia and bronchial troubles in nearly all parts. One case of diphtheria.

HAYWOOD—Dr. J. Howell Way, Waynesville. Measles on the wane. The epidemic has been rather unusually severe. Diarrhœa was a frequent factor in the complications. Several deaths have occurred from catarrhal pneumonia after measles.

HENDERSON—No Board of Health.

HERTFORD—Dr. John W. Tayloe, Union. Catarrhal troubles and pneumonia in all parts.

HYDE—No Board of Health.

IREDELL—Dr. W. J. Hill, Statesville. Measles (40), whooping cough, pneu-

monia and malarial fever in all parts. One case of typhoid fever.

JACKSON—Dr. W. F. Tompkins, Webster. Measles and whooping cough. Two cases of typhoid fever.

JOHNSTON—Dr. R. J. Noble, Selma. No diseases reported.

JONES—Dr. R. A. Whitaker, Trenton. No report.

LENOIR—Dr. James M. Parrott, Kinston. Whooping cough, malarial fever and coryza in all parts. Pneumonia about Kinston. The jail needs sewerage.

LINCOLN—Dr. Thos. F. Costner, Lincolnton. Measles and mumps in all parts; bronchitis and pneumonia.

MCDOWELL—Dr. Geo. I. White, Marion. Measles and whooping cough in nearly all parts.

MACON—Dr. S. H. Lyle, Franklin. Measles and whooping cough in all parts. The jail was burned a few days ago.

MADISON—Dr. Jas. K. Hardwicke. Forty cases of measles, six of typhoid fever.

MARTIN—Dr. W. H. Harrell, Williamston. Two cases of typhoid fever and one of hemorrhagic malarial. Catarrhal affections in all parts. The jail needs better ventilation and the county home some repairs. The commissioners have not furnished the promised changes.

MECKLENBURG—Dr. H. M. Wilder, Charlotte. Some measles and whooping cough, and three cases of diphtheria reported. The jail is overcrowded as the result of the long periods elapsing between the terms of the criminal court.

MITCHELL—Dr. C. E. Smith, Bakersville. Rubella and influenza epidemic in most parts. Some pneumonia and typhoid fever in western part. Some distemper among horses.

MONTGOMERY—Dr. W. A. Simmons, Troy. Mumps, measles and whooping cough.

MOORE—Dr. Gilbert McLeod, Carthage. Measles (200), mumps (200), influenza, bronchitis, tonsillitis and pneumonia. The commissioners are advertising for bids for steel cells, heating apparatus, water supply and sewerage for the jail.

NASH—Dr. J. J. Mann, Nashville. Very little sickness.

NEW HANOVER—Dr. J. C. Shepard, Wilmington. Measles in all parts. One case of hemorrhagic malarial fever.

NORTHAMPTON—Dr. H. W. Lewis, Jackson. One case of typhoid and three of hemorrhagic malarial fever. La grippe and pneumonia in some parts.

ONSLOW—Dr. E. L. Cox, Jacksonville. A few cases of measles, whooping cough, pneumonia and malarial fever.

ORANGE—Dr. D. C. Parris, Hillsboro. Measles, mumps and catarrhal fever in all parts. Some distemper among horses.

PAMLICO—No Board of Health.

PASQUOTANK—Dr. J. E. Wood, Elizabeth City. One case of typhoid fever. Catarrhal fevers in several parts.

PENDER—Dr. Geo. F. Lucas, Currie. Twenty cases of measles and four of typhoid fever. Bronchial troubles in all parts.

PERQUIMANS—Dr. J. W. Speight, Hertford. Pneumonia, la grippe and

malarial fever. The county home is very much in need of repairs.

PERSON—Dr. J. A. Wise, Roxboro. One case of typhoid. Pneumonia to some extent. Some improvement is needed in the sanitary condition of the jail.

PITT—Dr. Frank W. Brown, Greenville. Nothing of consequence to report.

POLK—Dr. C. J. Kenworthy, Tryon. No diseases to report.

RANDOLPH—Dr. T. T. Ferree, Ashboro. Ten cases of measles and five of typhoid fever.

RICHMOND—Dr. W. H. Steele, Rockingham. Measles (epidemic), pneumonia and mumps.

ROBESON—Dr. T. A. Norment, Jr., Lumberton. Measles, pneumonia and mumps extensively.

ROCKINGHAM—Dr. D. W. Courts, Reidsville. Measles, whooping cough and mumps in all parts.

ROWAN—Dr. John Whitehead, Salisbury. Measles (200), whooping cough (50), mumps, pneumonia and varicella in all parts. Two cases of typhoid fever.

RUTHERFORD—Dr. E. B. Harris, Rutherfordton. Measles and whooping cough much abated; still a few cases.

SAMPSON—Dr. Jno. A. Stevens, Clinton. Whooping cough, measles, varicella, influenza, bronchitis, pneumonia and intermittent fever.

STANLY—Dr. D. P. Whitley, Millington. About 100 cases of measles, the epidemic now subsiding. Catarrhal troubles in all parts.

STOKES—Dr. W. L. McCannless, Danbury. Measles in all parts.

SURRY—Dr. John R. Woltz, Dobson. One case of typhoid fever. Colds in all parts. The epidemic of measles has abated.

SWAIN—Dr. A. M. Bennett, Bryson City. Whooping cough among the Cherokees.

TRANSYLVANIA—Dr. M. M. King, Brevard. Four cases of measles and one of typhoid fever. There is no well on the jail lot, and there is some difficulty in getting water.

TYRRELL—Dr. B. W. Cohn, Columbia. No report.

UNION—Dr. J. E. Ashcraft, Monroe. Dr. Ashcraft has been confined to bed for several weeks, we regret to say.

VANCE—Dr. J. H. Tucker, Henderson. Measles, whooping cough, bronchitis, pneumonia and a few cases of tonsillitis in every section. Additions and improvements are being made to the jail and in a few months we will have the institution "up to date."

WAKE—Dr. P. E. Hines, Raleigh. Measles (236), whooping cough (1), diphtheria (1), typhoid fever (3), bronchitis, influenza and pneumonia. An epidemic of supposed hog cholera about Cary.

WARREN—Dr. Geo. A. Foote, Warrenton. Bronchitis and influenza in many parts.

WASHINGTON—No Board of Health.

WATAUGA—Dr. W. B. Council, Boone. Four cases of typhoid fever in eastern part.

WAYNE—Dr. W. J. Jones, Jr., Goldsboro. Two cases each of measles, whooping cough, scarlatina, diphtheria and typhoid fever. Catarrhal troubles in all parts.

WILKES—Dr. J. M. Turner, Wilkes-

boro. Whooping cough and measles in the middle and southern parts are subsiding, La grippe in some parts. The jail building and those at the county home need improving.

WILSON—Dr. N. Anderson, Wilson. One case of measles and one of pernicious malarial fever. Some intermittent and remittent fever.

YADKIN—Dr. T. R. Harding, Yadkinville. A few cases of measles and some catarrhal troubles.

YANCEY—Dr. J. L. Ray, Burnsville. Measles and whooping cough in some parts. The jail is somewhat crowded with United States prisoners.

Review of Diseases Reported for March, 1896.

BRONCHITIS—From Bertie, Carteret, Catawba, Chowan, Greene, Harnett, Lincoln, Moore, Pender, Sampson, Vance, Wake and Warren—13 counties.

CHOLERA, IN HOGS—From Bertie, Chowan, Columbus and Wake.

DIPHTHERIA—From Cabarrus, Harnett, Mecklenburg, Wake and Wayne.

DISTEMPER, IN HORSES—From Mitchell and Orange.

INFLUENZA—From Beaufort, Bladen, Carteret, Columbus, Granville, Greenville, Mitchell, Moore, Northampton, Perquimans, Sampson, Wake and Wilkes—13 counties.

MALARIAL FEVER—From Cabarrus, Davidson, Iredell, Lenoir, Martin, New Hanover, Northampton, Perquimans, Sampson and Wilson—10 counties.

MALARIAL FEVER, HEMORRHAGIC—From Martin, New Hanover and Northampton.

MALARIAL FEVER, PERNICIOUS—From Cabarrus.

MEASLES—From Alamance, Bladen, Burke, Cabarrus, Caldwell, Caswell, Catawba, Cherokee, Cleveland, Columbus, Davidson, Davie, Duplin, Durham, Forsyth, Granville, Halifax, Harnett, Haywood, Iredell, Jackson, Lincoln, McDowell, Macon, Madison, Mecklenburg, Mitchell, Montgomery, Moore, New Hanover, Onslow, Orange, Pender, Randolph, Richmond, Robeson, Rockingham, Rowan, Rutherford, Sampson, Stanly, Stokes, Swain, Transylvania, Vance, Wayne, Wilkes, Wilson, Yadkin and Yancey—50 counties.

MUMPS—From Buncombe, Durham, Gaston, Granville, Lincoln, Montgomery, Moore, Orange, Richmond, Robeson, Rockingham and Rowan—12 counties.

PNEUMONIA—From Alleghany, Beaufort, Bertie, Cherokee, Chowan, Davidson, Davie, Duplin, Edgecombe, Gaston, Greene, Harnett, Haywood, Hertford, Iredell, Lenoir, Lincoln, Mitchell, Moore, Northampton, Onslow, Perquimans, Person, Richmond, Robeson, Rowan, Sampson, Vance, Wake and Wilson—30 counties.

RÖTHELN—From Cabarrus.

SCARLATINA—From Chowan and Wayne.

TYPHOID FEVER—From Alamance, Bertie, Cabarrus, Duplin, Gaston, Ire-

dell, Jackson, Madison, Martin, Mitchell, Northampton, Pasquotank, Pender, Person, Randolph, Rowan, Surry, Wake, Watauga and Wayne—20 counties.

VARICELLA—From Rowan and Sampson.

WHOOPIING COUGH—From Burke, Cleveland, Edgecombe, Granville, Iredell, Jackson, Lenoir, McDowell, Macon, Mecklenburg, Onslow, Rockingham, Rowan, Rutherford, Sampson, Swain, Vance, Wake, Wayne, Wilkes and Yancey—21 counties.

Summary of Mortuary Reports for March, 1896.
(Twenty-seven towns.)

	White.	Col'd.	Total.
Aggregate population.....	85,722	55,163	140,885
Aggregate deaths.....	101	118	219
Representing annual death rate per 1000.....	14.1	25.6	18.6

Causes of Death.

Typhoid Fever.....	4	1	5
Scarlet Fever.....	3	0	3
Malarial Fever.....	1	1	2
Whooping cough.....	2	0	2
Measles.....	6	16	22
Pneumonia.....	23	24	47
Consumption.....	19	18	37
Brain diseases.....	5	7	12
Heart diseases.....	4	9	13
Neurotic diseases.....	1	1	2
Diarrhoeal diseases.....	3	3	6
All other diseases.....	29	35	64
Accident.....	1	3	4
	101	118	219
Deaths under 5 years.....	28	41	69
Still-born.....	3	12	15

Condition of Jails and County Homes by Counties for March, 1896.

COUNTIES.	JAIL.					HOME.				
	General Sanitary Condition.	Number Prisoners confined.	Space allotted each, (in cubic feet.)	Number giving evidence of successful vaccination.	Number who can read and write.	General Sanitary Condition.	Number inmates.	Space allotted each, (in cubic feet.)	Number giving evidence of successful vaccination.	Number who can read and write.
Alamance...	excellent	24 (a)				excellent	33			
Alexander .	very good	3				very good	6			3
Alleghany...	fair					fair	7			
Anson										
Ashe	excellent	9	706		2	excellent	9	658		2
Beaufort	good	15				good	14			
Bertie.	very good	8 (b)			3	very good	15		1	3
Bladen	fair	1				fair	6			
Brunswick .	fair	1	*	0	0	†	12	800	0	0
Buncombe .	very good	94 (c)	835	19	53	very good	38	*	18	14
Burke.....	no change	11				no change	15			
Cabarrus	good	22 (d)	*	2	6	good		921	2	10
Caldwell.....		7	950	2	5		4	*	2	2
Camden										
Carteret	†	1	800		1		0			
Caswell	fair	4				fair	27			
Catawba	well kept	10		3	3	fair	38		6	17
Chatham										
Cherokee.....		6					5			
Chowan	good	12	*			good	5	*	2	
Clay.....										
Cleveland*...	good	23	1,000		10	good	19	900		5
Columbus ...	good	1	*		1	good	11	*		3
Craven										
Cumberland	very good	14				very good	17			
Currituck .										
Dare.....	bad	2								
Davidson....	good	3				good	26			
Davie.....	no change	6		1	5	no change	10		2	0
Duplin.....	good	1	600			good	13	450	2	1
Durham		33 (c)	*				15	*		
Edgecombe	fair	17	975	1	2	fair	21	*	2	1
Forsyth.....		11	1,000	2	6		31	*	8	8

* Space exceeds 1,000 cubic feet. † See Summary of Reports from County Superintendents of Health. (a) Includes 14 in House of Correction. (b) Includes 5 in House of Correction. (c) Includes 71 in House of Correction. (d) Includes 18 in House of Correction. (e) Includes 23 in House of Correction.

Condition of Jails and County Homes by Counties.—CONTINUED.

COUNTIES.	JAIL.					HOME.				
	General Sanitary Condition.	Number Prisoners confined.	Space allotted each. (In cubic feet.)	Number giving evidence of successful vaccination.	Number who can read and write.	General Sanitary Condition.	Number inmates.	Space allotted each. (In cubic feet.)	Number giving evidence of successful vaccination.	Number who can read and write.
Franklin	very good	2	*			very good	28	*		
Gaston	good					good				
Gates										
Graham										
Granville	very good	6	600	2	4	very good	28	600	3	4
Greene	good	1	600	1	1	good	8	1,000	4	3
Guilford										
Halifax		6		2	3		40		4	5
Harnett		1								
Haywood	excellent	9			4	excellent	5			
Henderson										
Hertford	no change	1	*			no change	7	*		
Hyde										
Iredell	fair	36 (a)	550			fair	26			
Jackson		3	*	1	2		4		1	1
Johnston		8	*				13	*		
Jones										
Lenoir	not best	4					0			
Lincoln	good	10	800	3	7	good	21	800	12	6
McDowell		6					12			
Macon	†						10	600	7	8
Madison	good	4	500	2	1	good	20	400	6	10
Martin	†	3	*	0	3		12	*	5	5
Mecklenburg	fair	96 (b)				excellent	61			
Mitchell										
Montgomery	very good	6	500			very good	18	500		
Moore	†	4	*	0	3	good	5	*	0	2
Nash	good	5	600	4	5	good	27	1,000	8	7
New Hanover	crowded	53 (c)		13	41			*	22	8
Northampton	good	6	1,000	0	2	good	37	800	13	10
Onslow	good	6				very good	6			
Orange	not good	7	500	0	6	good	16	1,000	9	9
Pamlico										

* Space exceeds 1,000 cubic feet. † See Summary of Reports from County Superintendents of Health. (a) Includes 28 in House of Correction. (b) Includes 58 in House of Correction. (c) Includes 20 in House of Correction.

Condition of Jails and County Homes by Counties.—CONTINUED.

COUNTIES.	JAIL.					HOME.				
	General Sanitary Condition.	Number Prisoners confined.	Space allotted each, (in cubic feet.)	Number giving evidence of successful vaccination.	Number who can read and write.	General Sanitary Condition.	Number inmates.	Space allotted each, (in cubic feet.)	Number giving evidence of successful vaccination.	Number who can read and write.
Pasquotank.....	fair	3	*	0	1	fair	29	*	0	0
Pender.....	good	1	.....	0	.....	good	5	.....	0	.....
Perquimans.....	good	0	.....	.....	.....	†	7	.....	.....	.....
Person.....	†	9	.....	2	2	good	12	.....	10	.....
Pitt.....	good	36	1,000	.....	6	good	28	*	.....	2
Polk.....	good	2	1,000	1	1	.....	.....	.....	.....	.....
Randolph.....	well kept	3	.....	1	3	fair	30	.....	.....	6
Richmond.....	fair	16	890	0	.....	fair	20	*	0	.....
Robeson.....	good	23	.....	.....	.....	good	12	.....	.....	.....
Rockingham.....	excellent	34	*	.....	.....	excellent	8	600	.....	20
Rowan.....	.....	12	400	4	6	.....	24	500	7	11
Rutherford.....	.....	8	.....	.....	.....	.....	16	.....	.....	.....
Sampson.....	good	2	.....	.....	.....	good	7	.....	.....	.....
Stanly.....	good	2	*	0	2	good	8	*	0	1
Stokes.....	good	6	800	1	3	good	13	600	3	4
Surry.....	good	11 (a)	300	1	4	good	19	.....	.....	4
Swain.....	good	14	.....	.....	.....	good	3	.....	.....	.....
Transylvania.....	†	2	*	0	1	.....	5	*	0	.....
Tyrrell.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Union.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Vance.....	fair	10	*	2	2	excellent	13	.....	2	2
Wake.....	good	85 (b)	.....	.....	.....	good	.....	.....	.....	.....
Warren.....	good	0	.....	.....	.....	good	23	800	4	4
Washington.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Watauga.....	good	.....	.....	.....	.....	good	.....	.....	.....	.....
Wayne.....	good	9 (c)	.....	.....	.....	good	15	.....	.....	.....
Wilkes.....	fair	1	.....	.....	.....	fair	13	.....	.....	.....
Wilson.....	good	8	.....	3	4	good	31	.....	6	4
Yadkin.....	good	7	.....	.....	.....	good	22	.....	.....	.....
Yancey.....	well kept	11	400	2	5	no change	3	.....	.....	.....

* Space exceeds 1,000 cubic feet. † See Summary of Reports from County Superintendents of Health. (a) Includes 1 in House of Correction. (b) This applies to March 31 and includes 80 in House of Correction. (c) Includes 3 in House of Correction.

Mortuary Report for March, 1896.

TOWNS AND REPORTERS.	RACES.	POPULA- TION.		TEMPORARY ANNUAL DEATH RATE PER 1,000.		Typhoid Fever.	Scarlet Fever.	Malarial Fever.	Diphtheria.	Whooping Cough.	Measles.	Pneumonia. Consumption.	Brain Diseases.	Heart Diseases.	Neurotic Diseases.	Diarrheal Diseases.	All Other Diseases.	Accident. Suicide.	Violence.	TOTAL DEATHS.				
		By Races.	Total.																	By Races.	By Towns.	Deaths under 5 years. Still Born.		
Asheville.....	White.	8,000		7.5							1	1	1			1				5	15			
Dr. E. C. Starnes	Colored.	4,000	12,000	30.0	15.0															10				
Charlotte.....	White.	10,855		16.6								5	2	1			2	3		15	33	6		
C. A. Spratt, H. off'r	Colored.	8,736	19,651	23.4	20.1	1						5	1	4	2		2	3		18		7	1	
Durham.....	White.	4,000		9.0									2		1					3	5	1	1	
Dr. J. M. Manning.	Colored.	2,000	6,000	12.	10.0												2			2				
Fayetteville.....	White.	3,000		16.0			3									1				4	9	3		
Dr. J. V. McGougan.	Colored.	2,000	5,000	30.0	21.6							1		1			3			5				
GOLDSBORO.....	White.	3,700		13.0				1									5			4	8		1	
T. H. Bain, Secretary	Colored.	1,700	5,400	28.2	17.8												4					3	1	
HENDERSON.....	White.	2,250		5.3									1							1	5			
Dr. W. J. Judd.	Colored.	2,000	4,250	24.0	14.1							1	3							4		1		
HILLSBORO.....	White.	400		0.0																0	0			
Dr. D. C. Parris.	Colored.	300	700	0.0	0.0															0				
JACKSONVILLE.....	White.	300		40.0								1								1	0			
Dr. E. L. Cox.	Colored.	100	400	0.0	30.0															0				
LENOIR.....	White.	800		15.0							1									1	1			
Dr. A. A. Kent.	Colored.	300	1,100	0.0	10.9															0				
MARION.....	White.	750		16.0													1			1	0			
Dr. Geo. I. White.	Colored.	250	1,000	0.0	12.0															0				
MONROE.....	White.	1,800		0.0																0	1			
Dr. J. M. Blair.	Colored.	600	2,400	20.0	5.0						1									1				
OXFORD.....	White.	1,600		0.0										1						0	1			
Dr. Wm. O. Baskerville	Colored.	1,400	3,000	8.6	4.0															1				
RALEIGH.....	White.	7,200		28.5							1	3	2	3	1			6	1		17	26	4	
T. P. Sale, Clerk B. H.	Colored.	6,000	13,200	18.0	23.6						1	3			1	1		3		9				
ROCKINGHAM.....	White.	1,300		18.4								1	1							2	3			
Dr. W. H. Steele.	Colored.	450	1,750	26.7	20.6												1			1				
ROCKY MOUNT.....	White.	1,600		0.0																0	0			
Dr. G. L. Winberley.	Colored.	800	2,400	0.0	0.0															0				
SALEM.....	White.	3,942		24.3							1	2			1			4		8	9			
C. S. Hauser H. Officer	Colored.	342	4,284	35.0	25.2															1				
SALISBURY.....	White.	3,500		44.6		1				2	2	3	4				1			13	27	4		
Dr. John Whitehead.	Colored.	1,500	5,000	112.0	64.8					10		3					1			14		8		
SCOTLAND NECK.....	White.	775		0.0																0	1			
Mayor J. A. Perry.	Colored.	425	1,200	28.2	10.0			1												1				
SOUTHPORT.....	White.	750		32.0									1				1			2	4			
C. Cfk L. A. Galloway	Colored.	450	1,200	53.3	40.0								1				1			2				
Statesville.....	White.	2,500		19.2		1						1						2		4				
Dr. W. J. Hill.	Colored.	1,000	3,500	0.0	13.7															0				
TARBORO.....	White.	1,300		0.0																0	1			
Dr. Donald Williams	Colored.	1,200	2,500	10.0	4.8										1					1			1	
WARRENTON.....	White.	1,000		0.0									1							0	1			
Dr. G. A. Foote.	Colored.	500	1,500	24.0	8.0															1				
WASHINGTON.....	White.	3,000		16.0								2	1					1		4	8			
Dr. Joshua Tayloe.	Colored.	2,500	5,500	19.2	17.4							1	1				2			4		1		
WELDON.....	White.	700		0.0																0	1			
Mayor J. T. Gooch.	Colored.	750	1,450	16.0	8.3							1								1				
WILMINGTON.....	White.	13,000		11.1								4	2	1			5			12	33	8	1	
Dr. J. C. Shepard.	Colored.	9,000	22,000	28.0	18.0					2	5	1		1			11	1		21		11	6	
WILSON.....	White.	2,500		4.8																1	3			
Dr. N. Anderson.	Colored.	2,000	4,500	12.0	8.0								2				1			2				
WINSTON.....	White.	5,200		6.9													1			3	18			
Dr. John Bynum.	Colored.	4,800	10,000	37.5	21.6							1	5	3	1	2		3		15		3		

N. B. The reporters for the cities and towns printed in bold faced type have signed this certificate: "I hereby certify that this report gives the whole number of deaths occurring within the corporate limits during the above month." *Visitors.

METEOROLOGICAL SUMMARY FOR NORTH CAROLINA, MARCH, 1896.

Furnished by the North Carolina Agricultural Experiment Station and State Weather Service.

H. B. BATTLE, PH. D., DIRECTOR

C. F. VON HERRMANN, METEOROLOGIST.

STATIONS.	TEMPERATURE, (DEGREES FAHR.)									NO. OF DAYS.						
	Monthly Mean.	Highest.	Date.	Mean Maximum.	Lowest.	Date.	Mean Minimum.	Monthly Range.	Mean Daily Range.	Mean Rel. Humidity.	Total Precipitation.					Prevailing Wind.
												Clear.	Partly Cloudy.	Cloudy.	Rainy.	
Asheville.....	43.7	75	30	55.7	17	21	31.7	58	24.0	1.5	1.92	19	6	6	11	N W
Beaufort.....	52.2	69	25	61.2	30	14	43.3	39	17.9	0	2.52	18	8	5	6	N W
Chapel Hill.....	46.4	77	30	58.8	23	14	33.9	54	24.9	0	2.54	16	12	3	11	S W
Charlotte.....	48.2	77	30	58.7	26	21	37.7	51	21.0	0.4	1.55	9	14	8	5	S
Edenton.....	48.8	77	29	60.4	25	14	37.1	52	23.3	0.2	2.26	14	10	6	8	S
Horse Cove.....	43.1	71	30	53.5	15	¹² 13	32.7	56	20.8	0.5	2.80	14	10	7	13	N W
Littleton.....	46.0	76	30	58.3	22	14	33.7	54	24.6	2.0	3.26	8	8	15	10	S W
Lenoir.....	45.1	70	²⁹ 30	52.4	19	14	36.8	51	15.6	0.5	2.87	15	7	9	9	W
Louisburg.....	47.4	77	30	59.0	22	14	35.8	55	23.2	T	2.48	.....	.....	7	.....
Mt. Airy.....	43.4	72	²⁹ 30	54.7	15	14	32.2	57	22.5	1.0	5.01	8	14	8	7	S W
Mt. Pleasant.....	48.4	77	30	60.6	20	21	36.1	57	24.5	0.2	2.19	11	4	16	9	S W
Marion.....	48.8	76	29	60.1	25	21	37.6	51	22.5	T	2.26	12	12	7	7	N W
Newbern.....	53.2	83	30	67.0	26	14	39.4	57	27.6	T	1.87	.....	.....	8	.....
Oak Ridge.....	47.1	79	30	62.8	19	14	31.4	60	31.4	1.0	2.75	18	7	6	10	W
Pittsboro.....	45.8	70	30	55.9	20	14	35.6	50	20.3	0.2	2.90	13	7	11	7	S W
Raleigh.....	48.2	78	29	58.9	23	14	37.4	55	21.5	0.5	3.26	10	12	9	10	N W
Rockingham.....	52.5	82	29	65.9	24	21	39.1	58	26.8	T	1.88	15	8	8	3	.....
Roxboro.....	45.5	76	30	57.9	18	14	33.1	58	24.8	1.5	2.10	18	2	11	6	.....
Soapstone Mount...	46.4	77	30	61.4	18	14	31.4	59	30.0	2.0	2.76	5	18	8	8	S W
Saxon.....	47.0	76	30	58.8	20	14	35.2	56	23.6	3.0	2.98	12	11	8	9	N W
Selma.....	49.8	80	29	61.7	26	⁵ 21	37.8	54	23.9	0	2.23	.....	.....	8	.....
Salisbury.....	45.8	72	²⁹ 30	56.2	21	21	35.4	51	20.8	.....	2.42	.....	.....	9	.....
Tarboro.....	48.9	78	²⁹ 30	62.6	20	14	35.2	58	27.4	0.3	1.69	12	12	7	6	N W
Willeyton.....	48.0	79	30	60.6	22	14	35.3	57	25.3	2.0	2.15	13	9	9	7	S
Weldon.....	47.2	77	30	59.3	24	14	35.8	53	23.5	1.0	3.01	10	14	7	8	S
Wilmington.....	52.2	78	30	61.9	28	14	42.6	50	19.3	T	1.98	15	13	3	8	S W

State Meteorological Summary for March, 1896.

Mean barometer 30.08 inches; normal for March 30.06. Highest barometer 30.65 on the 14th at Raleigh. Lowest barometer 29.15 on the 11th at Raleigh. Mean temperature 47.2 degrees; normal for March 48.1. Highest temperature 85 on the 30th at Sloan. Lowest temperature 8 on the 14th at Jefferson and Linville. Average rainfall 2.59 inches; normal for March 4.54 inches. Greatest monthly rainfall 5.08 inches at Jefferson; least monthly rainfall 1.50 inches at Monroe. Average number of clear days 13; partly cloudy 10; cloudy 8; rainy 8. Prevailing wind direction Northwest. Average velocity 11.1 miles per hour. Normal direction for March Southwest; normal velocity 9.5 miles per hour.





BULLETIN

OF THE

NORTH CAROLINA BOARD OF HEALTH.

Published Monthly at the Office of the Secretary of the Board, at Raleigh, N. C.

GEO. G. THOMAS, M. D., <i>Pres.</i> ,.....Wilmington. S. WESTRAY BATTLE, M. D.,.....Asheville. W. H. HARRELL, M. D.,.....Williamston. JOHN WHITEHEAD, M. D.,.....Salisbury.	W. P. BEALL, M. D.,.....Greensboro. W. J. LUMSDEN, M. D.,.....Elizabeth City. PROF. F. P. VENABLE,.....Chapel Hill. J. C. CHASE, CIV. ENG.,.....Wilmington.
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RICHARD H. LEWIS, M. D., *Secretary and Treasurer*, Raleigh.

VOL. XI.

MAY, 1896.

No. 2.

Annual Meeting of the State Board of Health.

This was held, as is customary, at the same time and place as the State Medical Society, and therefore at Winston this year, 12-14 inst. With the exception of Mr. Chase, who was absent from the State, all the members were present for at least a part of the time. It was the unanimous opinion of the Board that substantial progress in educating the people in sanitation had been made in the past year, the result chiefly of the wide distribution of practical papers on matters pertaining to the public health and health conferences with the people. Upon the announcement by the Secretary that the 30,000 edition of the health pamphlet was about exhausted he was ordered to have reprinted at least 20,000, and as many more as in his judgment might be advisable. He was also instructed to add to them "Impurities in Drinking Water," by Prof. Venable; "Sanitary Drainage and Disposal of House-

hold Wastes," by Mr. Chase; and "The Care of the Eyes and Ears," written at the request of the Board several years since by the present Secretary. For the sake of convenience in mailing, and to insure each reader's getting them all, he was directed to have them all (7) bound together.

Charlotte was selected as the place for the next health conference, the date in the early fall to be selected by the Secretary after consultation with the President of the Board and the local profession.

Dr. P. L. Murphy, the new President of the State Medical Society and the able Superintendent of the State Hospital for the Insane at Morganton, was invited to a seat with the Board at one of its meetings and participated in a discussion of the care of the incurable insane in the State. This question is one which literally cries aloud for solution. Much interest was evinced, and Dr. Murphy was requested to prepare and read at the Charlotte conference a

paper of popular character, with a view to future distribution, on the importance and best method of properly caring for our incurable insane.

An inspection of the various State institutions and an examination, both chemical and bacteriological, of the different municipal water supplies were ordered made before the end of the year.

Owing to the lateness of the hour, caused by the election of members of the Board of Medical Examiners, which had the right of way, the conjoint session with the Society was not largely attended. At this meeting the President and Secretary read their annual reports. The care of the incurable insane was again discussed, and a kind resolution appreciative of the Board's work was offered by Dr. O'Hagan and adopted, upon which the conjoint session adjourned.

At a subsequent meeting of the Board various matters, routine and otherwise, were discussed and settled, whereupon an adjournment was had to meet again at Charlotte as above.

Any notice of the meeting would be incomplete without an acknowledgment of the kindness and hospitality extended so lavishly to one and all by the "Twin-City" of Winston-Salem.

Sanitary Drainage and the Disposal of Household Wastes.

BY J. C. CHASE, ENGINEER OF THE BOARD.
(Read before Washington Health Conference.)

The necessity of thoroughly draining town-sites can hardly be over-estimated. It is so generally admitted that any argument to that effect would seem to be superfluous. Unfortunately, however, the masses do not need argument so much, as having

their attention aroused to the danger of their unhealthful surroundings and unsanitary mode of living.

"Familiarity breeds contempt" and the average citizen will apathetically continue to endure his present ills instead of exerting himself to secure an improved condition of affairs. The dangers to health and life conditioned upon dwelling in the low, swampy sections of our state are so well known that they need not be dwelt upon. The advantage to public health gained by draining these swamps and putting them under cultivation is also a well-established fact, and a noteworthy illustration may be found at the convict camp at Caledonia.

The rapid and thorough removal of surface water should be the first great care in the carrying out of city sanitation. All lots should be so graded that falling water will run off with the greatest facility, and under no circumstances should pools of stagnant water be allowed to remain under dwellings. Pure water, under such conditions, would be bad enough, but when we consider that these pools are more than likely to be a decoction of the filth that too often accumulates about the average household, the prospect is far from inviting. I hope that such conditions are not common in the city we now have the pleasure of visiting.

Stagnant surface water is not alone the cause of the many ills that may be traced to an excess of moisture in our surroundings. The close proximity of the ground water to the surface is nearly, if not fully, as detrimental to health, and its removal from the vicinity of habitations should be the first care, when the establishment of a home is under consideration.

Unfortunately, in the building of cities, due regard is not paid to the question of drainage. As is well known, cities are a growth, which, too often, takes no thought for the future, considering, if any consideration is given to the matter, that the future can take care of itself. It is hardly possible to conceive of a more foolish idea.

The result is, that eventually, we find that our city contains numerous basins of entrapped water, that could have been easily disposed of, if a wise forethought had been exercised in the matter of surface grading, before the lots had been covered with habitations.

The first care then in beginning the sanitary improvement of that type of city, which we may style an overgrown village, will be to perfect its surface drainage. The streets should be so constructed that the water will flow quickly into gutters that will carry it beyond the confines of the city. These gutters should have such a slope and be kept in such a cleanly condition that the water will not have a chance to remain in pools to stagnate and putrefy.

In a city having the light grades that are the rule in those in this section of the state, the desired results can only be secured by vigilance exercised to, perhaps, a greater degree than we can hope for in the present state of popular opinion.

It goes without saying that all house lots should be raised to a grade that will permit of their surface drainage passing into the street gutter, if possible, or, failing in that, some system of underground drainage should be provided that will discharge at an eleva-

tion that will produce the desired effect.

This much for surface drainage. Now we can go a step farther and say that in the interest of healthy homes we should permanently lower the ground water near habitations to at least five or six feet below the surface. A soil thoroughly saturated with water is little, if any, more satisfactory as a local condition than dwelling over an actual water surface.

In a porous gravelly or sandy soil this danger is reduced to a minimum, but in the compact clayey soils of certain sections a thorough system of underground drainage is the only sure way of remedying the difficulty.

It is too much to expect that this city, for instance, will embark in such a scheme and the only chance of improving the local conditions would seem to be by paying due regard to securing effectual surface drainage, so that in due time the ground water level would be lowered, to some extent, by seepage into the lower strata. The slight elevation of the general surface of the city above the water level of the river does not afford much encouragement for any material lowering of the ground water level.

Frequently in the location of cities no regard is paid to the proximity of creeks or swamps that in due time are found to be unpleasant neighbors, to say the least, if not actually detrimental to health.

If the city does not find it practicable to move, the question of abating the nuisance becomes a live one. If, as is often the case, the swampy territory can not be thoroughly drained and turned into habitable territory, a deep channel can be dredged which

will give a clear and unobstructed waterway and aid very materially in reducing the quantity of stagnant water. The material removed can be used to raise the grade of the adjacent territory, the banks of the ditch or canal being protected by bulkheads, if necessary.

The disposal of household wastes is a serious question for the average householder, for on the satisfactory solution of this problem depends much of his comfort, convenience and happiness. For a certain class of the wastes, more particularly the liquid ones, water-carriage by means of a sewerage system is by far the best method, assuming that the system is properly and thoroughly constructed, and that the disposal of the effluent is accomplished in a satisfactory manner. There is a large amount of refuse, however, that it is impossible to remove by the means of sewers: we also have aggregations of houses that do not enjoy the advantage of sewer connections, and it is a serious question to devise for such cases satisfactory methods of disposal.

This paper is intended primarily for the benefit of those residing in our smaller cities and towns, who do not enjoy the advantages of a sewerage system, or the regular and systematic collection of garbage.

The first device resorted to is what is known as a "cess-pool" or "dry-well," into which the wastes from the kitchen sink, bath tubs and water closets are discharged, and out of which the liquid components are supposed to leach into the surrounding earth. If the earth is reasonably porous and the use of water is not excessive such receptacles will serve the desired purpose for a term of years, but sooner or later the pores of the earth will become clogged with

filth and the receptacle will fill up and require that its contents be removed from time to time.

This method of disposal is generally regarded by sanitarians as highly objectionable and to be tolerated only when absolutely no other way is practicable. The danger to the health of a household by the putrefying gases from such a collection of filth finding access to the dwelling by means of defective plumbing can scarcely be overestimated. In its best estate this device should only be tolerated, and in its worst prohibited as verging on a danger that is little short of criminal. Cess-pools should be absolutely forbidden in towns and villages obtaining their water supply from wells.

Country houses and those situated on large lots in villages can very often dispose of their sewage by permitting it to run out on the surface of a grassy or cultivated slope, care being taken that the quantity discharged in one spot is not large enough to create a stagnant pool.

If a ditch from the end of the outlet is so constructed as to uniformly distribute the daily flow over a fair sized area, the sunlight, air and vegetation will keep the locality practically innocuous.

In this climate I know of no better way to dispose of the liquid wastes of a household, where a sewerage system is not available, than by throwing them out on the soil, at a proper distance (not less than 100 feet from any well or spring and on a lower level) from the dwelling. Care should be taken not to concentrate the quantity in any one spot, and if thrown upon grass ground, which is preferable, any heated water should be allowed to stand until it is cooled. If not thrown

upon grass ground the soil should be stirred up from time to time to prevent its becoming hardened with an impervious coating of filth which would detract very seriously from its absorbing power.

This method is virtually the intermittent system of filtration which has given such excellent results in the purification of water and sewage. The area required for handling the wastes of an ordinary household is insignificant.

For ordinary kitchen refuse, generally known as "garbage," the most satisfactory method of disposal is by burning or burial, except where a systematic and regular collection of it is made by the municipal authorities; and even then the average householder can very often take care of his own wastes more efficiently than by leaving the work to be done by the average city department with the usual inefficiency and delays. In the interest of cleanliness, decency and health, accumulations of this sort should not be allowed to exist.

The most effectual way of disposal is by burning, and the kitchen stove can be used to good advantage for that purpose. The principal difficulty will be the large amount of moisture that will naturally be found in such stuff, which will deaden, if not put out the fire should an attempt be made to burn it in its ordinary condition. Several devices have been put on the market designed for the purpose of drying the refuse before any attempt is made to consume it. The most successful is one designed by Dr. S. H. Durgin, Chairman of the Boston Board of Health. It is merely a metal basket that is inserted into the stove-pipe. After the charge has been sufficiently dried it is

emptied into the fire, where it is readily consumed.

While cremation is without doubt the *best* method of destruction for all kitchen refuse, it is perhaps too much to expect its general use by the majority of householders. It will, however, be of great service in buildings occupied by several families, which have limited or no yard privileges.

In our small cities and villages where isolated houses are the rule, and the lots are sufficiently large, this refuse can be incorporated into a compost heap without any unpleasant or unhealthful results, or buried outright. If burial is resorted to, a shallow trench can be dug, and as each day's deposit is made, the adjacent earth thrown over it, thus making the excavation for future deposits.

The care of the ordinary privy and disposal of its contents as the occasion arises is one of the most troublesome questions in household sanitation. Although sanctioned by custom from time immemorial, I regard the common tight brick vault as an unmitigated nuisance. The ordinary practice of retaining a mass of semi-fluid filth for several years, as is often the case in close proximity to dwellings cannot be too strongly condemned. It is perhaps too much to expect that we can bring about the use of the "pail system," where a lined bucket would be used as a receptacle for the excreta; the contents being removed each day and buried, the bucket being recoated with lime before replacing it.

For the class of homes we have under consideration, I can conceive of no better way than to have the privy entirely above ground, without any receptacle for the excreta, other than a slight depression in the earth. The

excreta should be at once covered with a suitable quantity of dry earth or ashes, which would absorb any liquids and render the whole mass virtually innocuous. A receptacle for the covering material should be kept in the privy and replenished as often as it may become necessary. The accumulation should be removed weekly and buried, or used for fertilizing purposes.

This method would naturally prevent using the privy as a receptacle for the ordinary liquid wastes of the household, as is frequently the case, but these can be easily disposed of by a general distribution on the soil, as has been previously outlined.

Where the municipality takes upon itself the removal of the garbage and night-soil, the householder may experience a certain amount of relief from the onerous duty of personally attending to these duties, but I venture the assertion that he will probably secure better results by continuing to be his own scavenger. In any event he will realize that it is only by perpetual vigilance that a semblance of cleanliness can be maintained in this respect.

I have thus endeavored, in a brief and informal manner, to present a few ideas on the various branches of the topics under consideration, which, it is hoped, will tend to create a stronger public sentiment in favor of more healthful environments for the great mass of our citizens.

These views are not dogmatically presented as the only way of accomplishing the desired results, but rather as indicating some of the methods that can be used to aid in making our homes cleanly and comfortable, fully believing that where cleanliness, comfort and convenience abound good health is not far distant.

It is not considered out of place in conclusion to bear testimony to the important power that can be wielded by the mistress of the household in the line of securing proper sanitation. We hear a great deal in these days of the "New Woman," whatever the term may mean. If she comes educated and trained to uphold the hands of the physician and sanitarian, her coming, whether on bicycle or in bloomers, will be heartily welcomed and she will receive the honor and praise that, it is hoped, will eventually come to all those who devote their lives to ameliorating the condition of a large portion of the human race.

Summary of Reports from County Superintendents of Health, for April, 1896, (eighty-two counties reporting).

In the blanks on which these reports are made the following items are called for:

1. The number of cases of small-pox, measles, whooping cough, scarlatina, diphtheria, typhoid fever, pernicious malarial fever, hemorrhagic malarial fever, yellow fever and cholera which have occurred in the county during the past month.

2. The diseases which have been prevalent in the county, and in what parts.

3. Epidemics among domestic animals.

4. Remarks as to special unsanitary conditions in the county.

In few counties do physicians generally report these details to the Superintendent, though furnished with blanks for that purpose, and in most cases he has to depend upon himself alone in making his report.

Details as to the jails, houses of cor-

rection, and county homes are also given in these reports and will be found tabulated on other pages.

ALAMANCE—Dr. R. A. Freeman, Burlington. A few cases of measles.

ALEXANDER—Dr. T. F. Stevenson, Taylorsville. No diseases to report.

ALLEGHANY—Dr. Robt. Thompson, Sparta. Measles in northern, eastern and southern parts. An epidemic of distemper in horses.

ANSON—Dr. E. S. Ashe, Wadesboro. No report.

ASHE—Dr. L. C. Gentry, Crumpler. Four cases of typhoid fever in the northern part, where we had a slight epidemic last fall. Health especially good.

BEAUFORT—Dr. Joshua Tayloe, Washington. La grippe in most parts. One case of pernicious malarial fever.

BERTIE—Dr. H. V. Dunstan, Windsor. Some bronchitis and malarial disease. Very little sickness.

BLADEN—Dr. Newton Robinson, Elizabethtown. Less sickness than usual. Nothing to report.

BRUNSWICK—Dr. D. I. Watson, Southport. Two cases of typhoid fever.

BUNCOMBE—Dr. E. C. Starnes, Asheville. Cases of measles, mumps, whooping cough and chicken pox.

BURKE—Dr. J. L. Laxton, Morganton. Five cases of measles in town.

CABARRUS—Dr. Robert S. Young, Concord. Twelve cases of measles and two of typhoid fever. Bowel troubles in all parts.

CALDWELL—Dr. A. A. Kent, Lenoir. Forty cases of measles and a few of mumps. Some distemper in horses and cholera in chickens. Sanitary

condition of jail bad, owing to old and badly built structure, but as well kept as circumstances allow.

CAMDEN—No Board of Health.

CARTERET—Dr. George N. Ennett, Beaufort. One case of measles. Malarial and catarrhal troubles in many parts. I would advise that separate cells be arranged in the jail for the two races.

CASWELL—Dr. W. O. Spencer, Yanceyville. Measles and whooping cough in nearly all parts.

CATAWBA—Dr. D. McD. Yount, Newton. Measles in all parts. The county home is fairly well kept. It is on the cottage plan with large square court. The jail has modern cells and is well kept.

CHATHAM—No report.

CHEROKEE—Dr. J. F. Abernathy, Murphy. Four cases of diphtheria. The court house is under construction and promises to be a model sanitary building.

CHOWAN—Dr. R. H. Winborne, Rockyhook. Health never better. No diseases to report. Some hog cholera.

CLAY—Dr. W. E. Sanderson, Hayesville. A few cases of pneumonia. An epidemic of hydrophobia in dogs. One man has died of it and several head of stock.

CLEVELAND—Dr. O. P. Gardner, Shelby. Whooping cough in various parts. Attempts are being made to make the town more cleanly.

COLUMBUS—Dr. I. Jackson, Whiteville. Mild diarrhoea and a few cases of intermittent fever. Some hog cholera.

Craven—Dr. J. W. Duguid, Newbern. No report.

CUMBERLAND—Dr. J. Vance McGougan, Fayetteville. Measles, mumps and whooping cough in all parts. One case of scarlatina.

CURRITUCK—No Board of Health.

DARE—Dr. W. B. Fearing, Manteo. No sickness to report.

DAVIDSON—Dr. John Thames, Lexington. Measles, mumps and bronchial troubles in many parts. One case of typhoid fever.

DAVIE—Dr. James McGuire, Mocksville. Measles, bronchitis and pneumonia in many parts.

DUPLIN—Dr. J. C. Grady, Magnolia. Measles and influenza in some parts.

DURHAM—Dr. John M. Manning, Durham. Measles in mild form epidemic. Diarrhœa and some dysentery in nearly all parts.

EDGECOMBE—Dr. Donald Williams, Tarboro. Mumps, whooping cough and catarrhal troubles in some parts. One case of cerebro-spinal meningitis.

FORSYTH—Dr. E. F. Strickland, Bethania. Bowel troubles in some parts, chiefly among children. Measles subsiding.

FRANKLIN—Dr. E. S. Foster, Louisburg. Nothing to report.

GASTON—Dr. J. H. Jenkins, Dallas. Diarrhœa and dysentery quite common. One case of typhoid fever and one of inflammatory rheumatism.

GRAHAM—No Board of Health.

GRANVILLE—Dr. Wm. O. Baskerville, Oxford. Many cases of measles and a few of whooping cough.

GREENE—Dr. Joseph E. Grimsley, Snow Hill. Very little sickness. Some dysentery.

GUILFORD—Dr. W. J. Richardson,

Greensboro. No diseases prevalent. A few cases of measles and dysentery.

HALIFAX—Dr. I. E. Green, Weldon. Nine cases of measles. Mild malarial diseases in some parts.

HARNETT—Dr. J. F. McKay, Dickinson, reporter. Ten cases of measles. Catarrhal fever and intestinal troubles in nearly all parts.

HAYWOOD—Dr. J. Howell Way, Waynesville. Very little sickness. Two cases of typhoid fever.

HENDERSON—No Board of Health.

HERTFORD—Dr. John W. Tayloe, Union. Bronchial troubles and pneumonia in most parts. An epidemic of hog cholera in some sections.

HYDE—No Board of Health.

IREDELL—Dr. W. J. Hill, Statesville. Twenty-four cases of measles and twelve of mild whooping cough. Low lands along Little Rocky creek below the town of Olin are in a desperately bad condition but efforts are being made to improve them. A great deal of sickness came from that source last year.

JACKSON—Dr. W. F. Tompkins, Webster. Measles (29) and whooping cough (11) in nearly all parts. Two cases of typhoid fever.

JOHNSTON—Dr. R. J. Noble, Selma. Very healthy.

JONES—No report.

LENOIR—Dr. James M. Parrott, Kinston. Intermittent fever, diarrhœa and dysentery in all parts.

LINCOLN—Dr. Thos. F. Costner, Lincolnton. Measles, mumps, bronchitis and dysentery in all parts. The court house has been recently much improved by paint.

MCDOWELL—Dr. Geo. I. White,

Marion. Measles in nearly all parts. A few cases of typhoid fever and dysentery.

MACON—Dr. S. H. Lyle, Franklin. Twelve cases of measles. Whooping cough epidemic.

MADISON—Dr. Jas. K. Hardwicke, Marshall. Seven cases of measles and sixteen of typhoid fever.

MARTIN—Dr. W. H. Harrell, Williams-ton. Two cases of typhoid fever. Health of the county the best I have ever known.

MECKLENBURG—Dr. H. M. Wilder, Charlotte. Enterocolitis among children. One case of typhoid fever.

MITCHELL—Dr. C. E. Smith, Bakersville. Measles epidemic in all parts (300 cases). There are low and swampy lands on Bear creek which need draining badly. In that section there is annually considerable typhoid fever.

MONTGOMERY—Dr. W. A. Simmons, Troy. Mumps, measles (20 cases reported) and whooping cough (10).

MOORE—Dr. Gilbert McLeod, Carthage. Measles and mumps. Some gastro-intestinal troubles.

NASH—Dr. J. J. Mann, Nashville. Malarial fever, dysentery and typhoid fever in many sections.

NEW HANOVER—Dr. J. C. Shepard, Wilmington. Sixteen cases of measles and two of typhoid fever. Diarrhœa and malarial fever in all parts. A few cases of mumps.

NORTHAMPTON—Dr. H. W. Lewis, Jackson. Very little sickness.

ONslow—Dr. E. L. Cox, Jacksonville. Four cases of measles and six of whooping cough. The sewer attached to the jail is a nuisance. I have advised the commissioners to have it removed.

ORANGE—Dr. D. C. Parris, Hillsboro.

Measles, whooping cough, mumps and catarrhal diseases in all parts. Two cases of diphtheria.

PAMLICO—No Board of Health.

PASQUOTANK—Dr. J. E. Wood, Elizabeth City. No diseases to report.

PENDER—Dr. Geo. F. Lucas, Currie. Nothing to report.

PERQUIMANS—Dr. J. W. Speight, Hertford. Bronchitis and pneumonia in some parts.

PERSON—Dr. J. A. Wise, Roxboro. Measles (15) and some pneumonia.

PITT—Dr. Frank W. Brown, Greenville. Measles in several sections.

POLK—Dr. C. J. Kenworthy, Tryon. Measles in many parts.

RANDOLPH—Dr. T. T. Ferree, Ashboro. Measles (150) in all parts. Four cases of typhoid fever and five of hemorrhagic malarial fever. An epidemic of distemper in horses.

RICHMOND—Dr. W. H. Steele, Rockingham. Measles, pneumonia and mumps. One case of typhoid fever.

ROBESON—Dr. T. A. Norment, Jr., Lumberton. Dysentery.

ROCKINGHAM—Dr. D. W. Courts, Reidsville. Eight cases of measles, three of whooping cough and two of typhoid fever.

ROWAN—Dr. John Whitehead, Salisbury. Whooping cough, measles, chicken pox and rubella in all parts.

RUTHERFORD—Dr. E. B. Harris, Rutherfordton. Nothing of importance to report.

SAMPSON—Dr. Jno. A. Stevens, Clinton. A few cases of whooping cough and of malarial fever and a great many of measles and two of typhoid fever. Some chicken pox and bowel troubles. Hog cholera.

STANLY—Dr. D. P. Whitley, Millingport. A few cases of measles. Diarrhœal troubles in all parts. Some influenza during the first half of the month.

STOKES—Dr. W. L. McCanless, Danbury. Measles in all parts.

SURRY—Dr. John R. Woltz, Dobson. Four cases of measles and one of typhoid fever.

SWAIN—Dr. A. M. Bennett, Bryson City. Whooping cough among the Cherokees. An epidemic of distemper in horses.

TRANSYLVANIA—Dr. M. M. King. An epidemic of bilious fever.

TYRRELL—Dr. B. W. Cohn, Columbia. No report.

UNION—Dr. J. E. Ashcraft, Monroe; Dr. Jos. H. Price, acting. Measles in all parts. Fourteen cases of typhoid fever and six of whooping cough. The County Home has been repaired and repainted.

VANCE—Dr. J. H. Tucker, Henderson. Measles, whooping cough and bronchitis; and in Dabney township a few cases of typhoid fever.

WAKE—Dr. P. E. Hines, Raleigh. One hundred cases of measles and five of whooping cough. Five cases of typhoid fever in the country along the course of Neuse River near Wake Forest, one at the Insane Asylum and one from Virginia here for treatment. Influenza, bronchitis and pneumonia have prevailed in all parts of the county heard from. Seven reports received from blanks and circulars sent to 31 physicians.

WARREN—Dr. Geo. A. Foote, Warrenton. Two cases of measles and a few of pernicious malarial fever.

WASHINGTON—No Board of Health.

WATAUGA—Dr. W. B. Council, Boone. One case of measles. Very healthy.

WAYNE—Dr. W. J. Jones, Jr., Goldsboro. One case of measles. Very healthy. The court house is being thoroughly renovated.

WILKES—Dr. J. M. Turner, Wilkesboro. Measles and whooping cough in some parts.

WILSON—Dr. N. Anderson, Wilson. No diseases reported.

YADKIN—Dr. T. R. Harding, Yadkinville. No sickness of any consequence.

YANCEY—Dr. J. L. Ray, Burnsville. Several cases of measles, whooping cough and typhoid fever in some parts. The jail is near the middle of town, on a small lot where the filth has been emptied until the whole thing is a nuisance, and dangerous to the health of the town and surrounding country. There is some typhoid fever in and around it now, probably from former filth. Disinfectants are well used. The jail is very well kept now, about as clean as it well can be.

Review of Diseases Reported for April, 1896.

BRONCHITIS—From Bertie, Davidson, Davie, Hertford, Lincoln, Perquimans, Vance and Wake.—8 counties.

BOWEL DISEASES—From Cabarrus, Columbus, Durham, Forsyth, Gaston, Harnett, Lenoir, Moore, New Hanover, Sampson and Stanly.—11 counties.

CHOLERA, IN CHICKENS—From Caldwell.

CHOLERA, IN HOGS—From Chowan, Columbus and Hertford.

DIPHTHERIA—From Cherokee and Orange.

DISTEMPER, IN HORSES—From Alleghany, Caldwell, Randolph and Swain.

DYSENTERY—From Durham, Gaston, Guilford, Lenoir, Lincoln, McDowell, Nash and Robeson.—8 counties.

HYDROPHOBIA—From Clay.

INFLUENZA—From Duplin, Stanly and Wake.

MALARIAL FEVER—From Bertie, Beaufort, Carteret, Columbus, Halifax, Lenoir, Nash, New Hanover, Randolph, Sampson, Transylvania and Warren.—12 counties.

MALARIAL FEVER, HEMORRHAGIC—From Randolph.

MALARIAL FEVER, PERNICIOUS—From Beaufort and Warren.

MEASLES—From Alamance, Alleghany, Buncombe, Cabarrus, Caldwell, Carteret, Caswell, Catawba, Cumberland, Davidson, Davie, Duplin, Durham, Forsyth, Granville, Guilford, Halifax, Harnett, Iredell, Jackson, Lincoln, McDowell, Macon, Madison, Mitchell, Montgomery, Moore, New Hanover, Onslow, Orange, Person, Pitt, Randolph, Richmond, Rockingham, Rowan, Sampson, Stanly, Stokes, Surry, Union, Vance, Wake, Warren, Watauga, Wayne, Wilkes and Yancey.—48 counties.

MENINGITIS, CEREBRO-SPINAL—From Edgecombe.

MUMPS—From Buncombe, Caldwell, Cumberland, Davidson, Edgecombe, Lincoln, Montgomery, Moore, New

Hanover, Orange and Richmond.—11 counties.

PNEUMONIA—From Clay, Davie, Hertford, Perquimans, Person, Richmond and Wake.—7 counties.

RHEUMATISM—From Gaston.

SCARLATINA—From Columbus.

TYPHOID FEVER—From Ashe, Brunswick, Cabarrus, Davidson, Gaston, Haywood, Jackson, McDowell, Madison, Martin, Mecklenburg, Nash, New Hanover, Randolph, Richmond, Rockingham, Sampson, Surry, Union, Vance, Wake and Yancey.—22 counties.

WHOOPIING COUGH—From Buncombe, Caswell, Cleveland, Cumberland, Edgecombe, Granville, Iredell, Jackson, Macon, Montgomery, Onslow, Orange, Rockingham, Rowan, Sampson, Swain, Vance, Wake, Wilkes and Yancey.—20 counties.

Summary of Mortuary Reports for April, 1896. (Twenty-seven towns.)

	White.	Col'd.	Total.
Aggregate population.....	86,422	61,663	148,085
Aggregate deaths.....	99	119	209
Representing annual death rate per 1000.....	12.5	23.2	17.0
<i>Causes of Death.</i>			
Typhoid Fever.....	1	1	2
Scarlet Fever.....	1	0	1
Malarial Fever.....	0	3	3
Diphtheria.....	1	0	1
Whooping Cough.....	3	0	3
Measles.....	3	9	12
Pneumonia.....	13	24	37
Consumption.....	6	18	24
Brain diseases.....	8	8	16
Heart diseases.....	7	8	15
Neurotic diseases.....	3	2	5
Diarrheal diseases.....	5	7	12
All other diseases.....	39	39	78
Deaths under 5 years.....	90	119	209
Still-born.....	14	13	27

Condition of Jails and County Homes by Counties for April, 1896.

COUNTIES.	JAIL.					HOME.				
	General Sanitary Condition.	Number Prisoners confined.	Space allotted each, (in cubic feet.)	Number giving evidence of successful vaccination.	Number who can read and write.	General Sanitary Condition.	Number inmates.	Space allotted each, (in cubic feet.)	Number giving evidence of successful vaccination.	Number who can read and write.
Alamance...	good	23 (a)	.....	.....	.....	good	33	.....	.....	.....
Alexander ..	very good	3	.....	.....	.....	very good	5	.....	.....	2
Alleghany...	.....	1	.....	.....	.....	.....	8	.....	.....	.....
Anson .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Ashe	good	.....	.....	.....	.....	good	9	700	.....	2
Beaufort ...	very good	13	.....	.....	.....	very good	12	.....	.....	.....
Bertie.	very good	9 (b)	.....	.....	.....	very good	17	.....	2	2
Bladen	no change	1	.....	.....	.....	no change	6	.....	.....	.....
Brunswick ..	no change	1	*	0	0	no change	12	900	0	0
Buncombe ..	very good	106 (c)	550	18	65	very good	38	*	18	14
Burke.....	no change	7	.....	.....	.....	no change	14	.....	.....	.....
Cabarrus	good	28 (d)	*	0	7	good	26	912	7	14
Caldwell....	†	5	*	0	4	.....	6	*	2	2
Camden .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Carteret	fair †	1	800	.....	.....	.....	0	.....	.....	.....
Caswell	no change	4	.....	.....	.....	no change	26	.....	.....	.....
Catawba	†	10	.....	6	6	†	36	.....	.....	.....
Chatham .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Cherokee	no change	2	.....	.....	.....	no change	4	.....	.....	.....
Chowan	good	12	*	0	0	good	5	*	.....	0
Clay.....	very good	3	.....	.....	.....	.....	.....	.....	.....	.....
Cleveland ..	.....	15	1,000	.....	10	.....	23	900	.....	4
Columbus ...	good	1	*	.....	1	good	13	*	.....	0
Craven .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Cumberland ..	.....	12	.....	.....	.....	.....	18	.....	.....	.....
Currituck ..	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Dare .....	.....	2	.....	.....	.....	.....	0	.....	.....	.....
Davidson....	fair	4	.....	.....	.....	fair	26	.....	.....	3
Davie.	no change	4	.....	1	2	no change	10	.....	2	0
Duplin.....	better	1	600	.....	.....	better	17	450	3	4
Durham .....	.....	53 (e)	700	.....	.....	.....	17	*	.....	.....
Edgecombe ..	fair	10	*	0	2	fair	21	*	2	1
Forsyth.....	fair	13	1,000	3	6	fair	31	*	8	8

* Space exceeds 1,000 cubic feet. † See Summary of Reports from County Superintendents of Health. (a) Includes 13 in House of Correction. (b) Includes 8 in House of Correction. (c) Includes 71 in House of Correction. (d) Includes 17 in House of Correction. (e) Includes 27 in House of Correction.

Condition of Jails and County Homes by Counties.—CONTINUED.

COUNTIES.	JAIL.					HOME.				
	General Sanitary Condition.	Number prisoners confined.	Space allotted each, (in cubic feet.)	Number giving evidence of successful vaccination.	Number who can read and write.	General Sanitary Condition.	Number inmates.	Space allotted each, (in cubic feet.)	Number giving evidence of successful vaccination.	Number who can read and write.
Franklin	no change	9	*			no change	27	*		
Gaston	well kept					well kept				
Gates										
Graham										
Granville	good	2	600	0	0	good	26	600	2	3
Greene	good	3	600	1	2	good	8	1,000	4	3
Guilford	no change	42 (c)				no change	43			
Halifax		6		2	3		38		4	5
Harnett		3								
Haywood		11			7		6			
Henderson										
Hertford	no change	0				no change	9	*	0	2
Hyde										
Iredell	no change	53 (b)	500			no change	25			
Jackson		5		0	2		4		1	2
Johnston		4	*	0	0		13	1,000	0	0
Jones										
Lenoir	bad	4								
Lincoln	good	3	*	1	1	fair	21	800	13	6
McDowell										
Macon	no jail						10	700	7	8
Madison	good	6	400	1	2	good	20	900	7	8
Martin		1	*	0	1		13	*	5	4
Mecklenburg	good	94 (d)	*			good	58	*		
Mitchell	good	4				good	5			
Montgomery	good	2	500			good	18	500		
Moore	good	4	*	0	2	good	4	*	0	1
Nash	good	6	600	3	4	good	29	1,000	7	8
New Hanover	fair	54 (c)	400 (d)	7	34	good	29	*	24	8
Northampton	good	4	1,000	0	1	good	38	850	10	13
Onslow	+	2					6			
Orange	no change	4	500	0	4	good	14	1,000	7	9
Pamlico										

* Space exceeds 1,000 cubic feet. + See Summary of Reports from County Superintendents of Health. (a) Includes 27 in House of Correction. (b) Includes 25 in House of Correction. (c) House of Correction also crowded. (d) Includes 24 in House of Correction. (e) Includes 86 in House of Correction.

Condition of Jails and County Homes by Counties.—CONTINUED.

COUNTIES.	JAIL.					HOME.				
	General Sanitary Condition.	Number Prisoners confined.	Space allotted each, (In cubic feet.)	Number giving evidence of successful vaccination.	Number who can read and write.	General Sanitary Condition.	Number inmates.	Space allotted each, (In cubic feet.)	Number giving evidence of successful vaccination.	Number who can read and write.
Pasquotank.....	fair	1	*	.....	0	fair	26	*	3	0
Pender.....	good	1	.....	0	1	good	5	.....	0	0
Perquimans.....	.....	1	.....	.....	.....	.....	6	.....	.....	.....
Person.....	not good	.....	.....	.....	.....	good	12	.....	9	5
Pitt.....	good	10	*	.....	.....	good	22	*	.....	2
Polk.....	good	4	*	2	2	.....	0	.....	.....	.....
Randolph.....	no change	4	.....	.....	4	no change	30	.....	.....	6
Richmond.....	fair	20	760	0	15	fair	20	*	.....	4
Robeson.....	good	13	.....	.....	.....	good	14	.....	.....	.....
Rockingham ..	excellent	14	716	.....	.....	excellent	34	882	21	.....
Rowan.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Rutherford.....	.....	4	.....	.....	.....	.....	20	.....	.....	.....
Sampson.....	good	3	.....	.....	.....	good	18	.....	.....	.....
Stanly.....	good	2	*	0	1	good	8	*	0	1
Stokes.....	good	5	600	1	2	good	15	600	4	4
Surry.....	.....	5	600	2	3	.....	23	.....	.....	3
Swain.....	.....	13	396	0	13	good	6	770	1	0
Transylvania ..	.....	3	*	.....	2	.....	5	*	.....	2
Tyrrell.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Union.....	.....	10	.....	.....	.....	.....	20	.....	.....	.....
Vance.....	fair	9	*	3	2	very good	13	*	2	2
Wake.....	very good	95 (a)	.....	.....	.....	very good	70	.....	.....	.....
Warren.....	very good	3	1,000	1	1	very good	23	500	4	4
Washington.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Watauga.....	good	9	.....	.....	6	good	7	.....	.....	2
Wayne.....	.....	8 (b)	.....	.....	2	.....	13	.....	.....	1
Wilkes.....	no change	8	.....	.....	.....	no change	13	.....	.....	.....
Wilson.....	.....	11	.....	3	4	.....	31	.....	2	3
Yadkin.....	fair	9	.....	0	3	good	20	.....	0	7
Yancey.....	well kept†	8	500	1	3	.....	2	.....	.....	.....

* Space exceeds 1,000 cubic feet. † See Summary of Reports from County Superintendents of Health. (a) Includes 80 in House of Correction. (b) Includes 2 in House of Correction.

Mortuary Report for April, 1896.

TOWNS AND REPORTERS.	RACES.	POPULATION.		TEMPORARY ANNUAL DEATH RATE PER 1,000.		Typhoid Fever.	Scarlet Fever.	Malarial Fever.	Diphtheria.	Whooping Cough.	Measles.	Pneumonia.	Consumption.	Brain Diseases.	Heart Diseases.	Nervotic Diseases.	Diarrheal Diseases.	All Other Diseases.	Accident.	Suicide.	Violence.	TOTAL DEATHS. By Towns Deaths under 5 years.	Still Born.
		By Races.	Total.	By Races.	Total.																		
Asheville.....	White.	8,000	12,000	10.4	9.0				1			2	3								3	9	
Dr. E. C. Starnes	Colored.	4,000		6.0										1									
CHARLOTTE	White.	10,855	19,651	12.2	15.2							2	1	2	3	3					11	23	12
C. A. Spratt, H. off'r	Colored.	8,796		19.1								4	2	1	1	1	4						
Durham.....	White.	4,000	6,000	0.0	2.0							1									0	1	
Dr. J. M. Manning.	Colored.	2,000		6.0																	1		
Fayetteville.....	White.	3,000	5,500	8.0	15.3	1						1	1	1							5	7	3
Dr. J. V. McGougan.	Colored.	2,500		24.0																			
GOLDSBORO	White.	3,700	5,400	9.7	11.1							1					1	2			2	5	3
T. H. Bain, Secretary	Colored.	1,700		14.1														1					
GREENSBORO	White.	5,500	8,000	13.0	21.0							2	1	1				2			6	14	1
J. S. Michaux, City Clk	Colored.	2,500		38.4								1	2	1	1			1				1	1
HENDERSON	White.	2,250	4,250	5.3	11.2							1									1	4	
Dr. W. J. Judd.	Colored.	2,000		18.0			1					2											
HILLSBORO	White.	400	700	0.0	34.2									1							2		
Dr. D. C. Parris.	Colored.	300		80.8								1		1									
JACKSONVILLE	White.	200	300	0.0	0.0																0	0	
Dr. E. L. Cox.	Colored.	100		0.0																			
LENOIR	White.	800	1,100	0.0	0.0																0	0	
Dr. A. A. Kent.	Colored.	300		0.0																	0		
MARION	White.	800	1,000	0.0	0.0																0	0	
Dr. Geo. I. White.	Colored.	200		0.0																	0		
MONROE	White.	1,800	2,400	13.3	10.0							1						1			2	2	1
Dr. J. M. Blair.	Colored.	600		0.0																	0		
OXFORD	White.	1,600	3,000	0.0	0.0																0	0	
Dr. Wm. O. Baskerville	Colored.	1,400		0.0																			
RALEIGH	White.	7,200	13,200	16.8	25.6							1	1	2			1	5			10	28	3
T. P. Sale, Clerk B. H.	Colored.	6,000		36.0								1	5	5	3	1	1	2			18	7	2
ROCKINGHAM	White.	1,500	1,750	46.1	41.1							2							3		5	6	
Dr. W. H. Steele.	Colored.	450		26.7										1							1		
ROCKY MOUNT	White.	1,600	2,400	7.5	10.0									1					1		1	2	
Dr. G. L. Wimberley.	Colored.	800		15.0																	1		
SALEM	White.	3,942	4,284	12.2	11.2							1	1						2		4	4	1
C. S. Hauser H. Officer	Colored.	342		0.0																			
SALISBURY	White.	3,500	5,000	17.2	33.6									2	1		1	1			5	14	12
Dr. John Whitehead.	Colored.	1,500		72.0		1				2	4							2			9	7	
SCOTLAND NECK	White.	775	1,200	0.0	10.0													1			1	1	
Mayor J. A. Perry.	Colored.	425		28.2																			
Statesville.....	White.	2,500	3,500	14.4	13.7							2		1							3	4	
Dr. W. J. Hill.	Colored.	1,000		12.0														1			1		
TARBORO	White.	1,300	2,500	27.7	14.4														3		3	3	
Dr. Donald Williams	Colored.	1,200		0.0																	0		
WARRENTON	White.	1,000	1,500	12.0	16.0											1					1	2	
Dr. G. A. Foote.	Colored.	500		24.0															1		1		
WASHINGTON	White.	3,000	5,500	8.0	24.0							1							1		2	11	
Dr. Joshua Tayloe.	Colored.	2,500		43.2			1						1						7				
WELDON	White.	700	1,450	17.1	24.8														1		1	3	1
Mayor J. T. Gooch.	Colored.	750		32.0																			
WILMINGTON	White.	9,000	22,000	16.0	18.5	1									1			10			12	34	6
Dr. J. C. Shepard.	Colored.	13,000		20.3			1					2	4	3		1		11			22	10	2
WILSON	White.	2,500	4,500	28.8	24.0				1			2							3		6	9	3
Dr. N. Anderson.	Colored.	2,000		18.0								1							2		3		
WINSTON	White.	5,200	10,000	9.23	22.8							1	1	1	1						4	19	2
Dr. John Bynum.	Colored.	4,800		37.5								1	1	6	1			3	3		15	1	3

N. B. The reporters for the cities and towns printed in bold faced type have signed this certificate: "I hereby certify that this report gives the *whole* number of deaths occurring within the corporate limits during the above month."

METEOROLOGICAL SUMMARY FOR NORTH CAROLINA, APRIL, 1896.

Furnished by the North Carolina Agricultural Experiment Station and State Weather Service.

H. B. BATTLE, PH. D., DIRECTOR.

C. F. VON HERRMANN, METEOROLOGIST.

STATIONS.	TEMPERATURE, (DEGREES FAHR.) ^a									NO. OF DAYS.						
	Monthly Mean.	Highest.	Date.	Mean Maximum.	Lowest.	Date.	Mean Minimum.	Monthly Range.	Mean Daily Range.	Mean Rel. Humidity.	Total Precipitation.	Clear.	Partly Cloudy.	Cloudy.	Rainy.	Prevailing Wind.
Asheville.....	59.4	90	18	73.3	25	15	45.6	65	27.7	62.9	1.87	20	0	10	8	N W
Beaufort.....	62.4	83	22	69.3	38	8	54.4	45	14.9	.....	1.87	18	7	5	6	S
Chapel Hill.....	63.8	97	18	76.1	31	8	51.5	66	24.6	.....	2.23	23	3	4	5	S W
Charlotte.....	64.8	94	17	76.2	34	3	53.5	60	22.7	60.4	1.90	25	7	3	8	S
Edenton.....	61.7	88	18	71.8	32	5	51.6	56	20.2	.....	2.13	17	10	3	7	S
Horse Cove.....	59.8	87	18	70.2	30	4	49.3	57	20.9	.....	1.86	15	10	5	8	S E
Jacksonville.....	66.2	91	21	76.5	37	3	56.0	54	20.5	.....	3.59	26	0	4	5	S
Lenoir.....	61.3	88	18	71.7	31	4	50.3	54	21.4	.....	2.69	18	5	7	5	S W
Louisburg.....	63.2	96	18	75.3	28	5	51.0	68	24.3	.....	1.46	.....	.....	.....	.....	S
Mt. Airy.....	61.6	94	18	74.4	26	8	46.7	68	27.7	.....	0.94	4	20	6	5	S W
Mt. Pleasant.....	61.0	94	18	76.5	32	5	51.6	62	24.9	.....	1.19	10	8	12	6	S W
Marion.....	61.3	94	18	76.8	30	3	51.8	64	25.0	.....	2.62	11	16	3	7	W
Newbern.....	65.3	92	21	76.7	34	4	53.9	58	22.8	.....	2.37	.....	.....	.....	6	.....
Oak Ridge.....	64.3	96	15	78.9	32	3	49.8	64	29.1	.....	1.88	22	5	3	5	W
Pittsboro.....	63.2	93	18	73.8	30	5	52.5	63	21.3	.....	1.42	18	7	5	3	S W
Raleigh.....	63.6	95	18	74.5	31	8	52.6	64	21.9	64.0	1.50	15	11	4	7	S
Rockingham.....	67.0	97	18	80.7	35	4	53.2	62	27.5	.....	2.31	25	3	2	5	S
Roxboro.....	62.4	96	18	74.5	27	8	50.4	69	24.1	.....	2.79	21	3	6	7	.....
Sloan.....	64.5	92	20	77.9	31	3	51.1	61	26.8	.....	3.65	17	6	7	6	S E
Saxon.....	62.3	97	18	76.1	27	8	48.5	70	27.6	.....	1.84	12	11	7	5	S W
Selma.....	64.4	94	18	76.9	31	5	52.0	63	24.9	.....	2.58	.....	.....	.....	6	.....
Sallsbury.....	63.8	94	18	75.9	31	8	51.7	63	24.2	.....	1.09	.....	.....	.....	3	.....
Waynesville.....	58.3	86	17	71.1	28	3	45.5	58	25.6	.....	1.81	17	9	4	7	S W
Willeyton.....	61.2	97	18	73.9	28	5	48.4	69	25.5	.....	1.27	12	12	6	3	S
Weldon.....	62.2	94	18	73.6	29	5	50.8	65	22.8	.....	1.94	15	9	6	7	S
Wilmington.....	63.7	89	21	73.1	38	8	54.3	51	18.8	73.2	0.64	17	12	1	6	S W

State Meteorological Summary for April, 1896.

Mean barometer 30.17 inches; normal for April 30.04. Highest barometer 30.54 on the 9th at Kitty Hawk and Wilmington. Lowest barometer 29.78 on the 2d at Kitty Hawk. Mean temperature 62.3 degrees; normal for April 57.9. Highest temperature 98 on the 18th at Henderson. Lowest temperature 21 on the 3d at Highlands, on 8th at Linville. Average rainfall 1.99 inches; normal for April 3.78 inches. Greatest monthly rainfall 4.80 inches at Linville; least monthly rainfall 0.64 inches at Wilmington. Average number of clear days 16; partly cloudy 9; cloudy 3; rainy 5. Prevailing wind direction Southwest. Average velocity 9.0 miles per hour. Normal direction for April Southwest; normal velocity 8.8 miles per hour.

CORRECTION.—In March report the column headed "Mean Relative Humidity," should have been headed "Total Snowfall."

BULLETIN

OF THE

NORTH CAROLINA BOARD OF HEALTH.

Published Monthly at the Office of the Secretary of the Board, at Raleigh, N. C.

GEO. G. THOMAS, M. D., *Pres.*,.....Wilmington.
 S. WESTRAY BATTLE, M. D.,.....Asheville.
 W. H. HARRELL, M. D.,.....Williamston.
 JOHN WHITEHEAD, M. D.,.....Salisbury.

W. P. BEALL, M. D.,.....Greensboro.
 W. J. LUMSDEN, M. D.,.....Elizabeth City.
 PROF. F. P. VENABLE,.....Chapel Hill.
 J. C. CHASE, CIV. ENG.,.....Wilmington.

RICHARD H. LEWIS, M. D., *Secretary and Treasurer*, Raleigh.

VOL. XI.

JUNE, 1896.

No. 3.

National Conference of State Boards of Health.

Together with President Thomas we attended the meeting at Chicago, on the 10th-12th inst., of this, in our opinion, the most useful of all the sanitary organizations of the country. Its membership up to the present time has been limited to the State and Provincial boards of health of the U. S. and Canada, but at the recent meeting an amendment to the constitution admitting the corresponding bodies of Mexico and the officers of the Marine Hospital service, which will no doubt be adopted at the next meeting. This, however, will not change the character of the personnel, as the new members will be all active, practical health officers.

The programme, embracing papers and practical subjects for discussion, was too long for reprinting here, but we were particularly pleased with a report by Dr. Schwarz, the talented secretary of the Rhode Island Board of Health, on the certain experiments and

observations on the filtration of water. We hope to give our readers the benefit of some extracts from this valuable report when it is published. One of the most important matters brought before us was the report of the committee on the establishment of a national department of health—a subject which has engaged the attention of the American Medical Association and various sanitary bodies for some time. When it was discussed at the conference held in Washington City in December, '94, North Carolina was practically alone in advocating the amplification of the powers and work of the Marine Hospital Service, on the ground that it was already in existence, was well organized and, in our opinion, well managed, composed only of men selected on merit who devoted their lives to sanitary work, and so organized as to be entirely free from the control of politicians. So we were naturally gratified when we heard the report, which was unanimously adopted,

recommending this very thing with proper safeguards of course to prevent undue interference with state boards, including an advisory board composed of one member from each state board, to meet annually in Washington with the officials of the Service.

On Wednesday night Mr. Lyman E. Cooley, at one time the chief engineer of the work, gave us an extremely interesting account of the great drainage canal of the Sanitary District of Chicago. It is to be over 30 miles in length, emptying into the lower Des-plaines river and thence through the Illinois into the Mississippi. Eight miles is through solid rock, the width at the bottom in that part is 160 feet, with nearly perpendicular sides, and the width at the bottom in the earthen portion 202 feet, with sloping sides. It is designed to carry 600,000 gallons of water per minute, thereby accommodating a population of 3,000,000, and will float any vessel drawing less than 22 feet. To give us a concrete idea of the magnitude of the work, he stated that the stone taken out would build four pyramids as large as the great pyramid of Egypt, and the total amount of material removed, if dumped in 40 feet of water, would make an island a mile square, showing 8 feet above the surface, or would load a freight train 26,000 miles long—more than long enough to encircle the globe. The main body of the canal is finished, nearly \$22,000,000 having been expended up to May 1, '96. It is hoped that the terminals will be completed and the canal in operation in about a year.

The next day we were, placed in charge of the genial Dr. Reilly, the Assistant Commissioner of Health, on excursion to view this gigantic work.

At Willow Springs, half way down the canal, we were disembarked and served with an elegant lunch, which included a full account of the work from Mr. Eckhart, the president of the Board of Trustees, and a very happy response from Dr. Ruggles, of California, the newly-elected president of the Conference, after which we proceeded to view "the big ditch." We were greatly interested in, and impressed by, the wonderful machinery especially designed by American ingenuity for the performance of this particular work.

The following day we were taken to the "cribs,"—the intakes of the city water supply—one situated two and the other four miles out in the lake. As our boat passed through the Chicago river, which now receives the sewage of the city, we saw the water apparently boiling in places from the fermentation of the filth, and when we were informed that the water at the four-mile crib had been contaminated several times we could well understand the necessity for the gigantic undertaking of the drainage canal for the sewage, the crowning work of the most enterprising city on earth.

In conclusion we desire to make our acknowledgments to Dr. Scott, the secretary of the Illinois Board of Health, Dr. Reilly and the other city officials, including the jovial Mr. O'Neill, the veteran alderman. Great is Chicago!

The Pan-American Medical Congress.

The meeting of the second Pan-American Medical Congress will be held in the City of Mexico, Nov. 16th to 19th inclusive. Dr. Reed, *ex-officio* secretary of the International Executive Committee, says in a recent letter:

"The enthusiasm with which not only the medical profession, but the Government of Mexico, has taken hold of the proposed meeting, guarantees its success. Judging from the statements of those who attended the meeting of the American Public Health Association in the same city in '92, an extremely interesting and enjoyable trip is assured, to say nothing of the scientific value of the Congress. Any one wishing to attend can obtain detailed information by addressing Dr. Charles A. L. Reed, *ex-officio* secretary, St. Leger Place, Cincinnati, O.

RICHARD H. LEWIS,
Vice-President for North Carolina.

Summary of Reports from County Superintendents of Health, for May, 1896, (eighty-two counties reporting).

In the blanks on which these reports are made the following items are called for :

1. The number of cases of small-pox, measles, whooping cough, scarlatina, diphtheria, typhoid fever, pernicious malarial fever, hemorrhagic malarial fever, yellow fever and cholera which have occurred in the county during the past month.

2. The diseases which have been prevalent in the county, and in what parts.

3. Epidemics among domestic animals.

4. Remarks as to special unsanitary conditions in the county.

In few counties do physicians generally report these details to the Superintendent, though furnished with blanks for that purpose, and in most cases he has to depend upon himself alone in making his report.

Details as to the jails, houses of correction, and county homes are also given in these reports and will be found tabulated on other pages.

ALAMANCE—Dr. R. A. Freeman, Burlington. No diseases to report.

ALEXANDER—Dr. T. F. Stevenson, Taylorsville. Six cases of measles and three of whooping cough.

ALLEGHANY—Dr. Robt. Thompson, Sparta. Measles and some dysentery in the middle part.

ANSON—Dr. E. S. Ashe, Wadesboro. No report.

ASHE—Dr. L. C. Gentry, Crumpler. No diseases reported.

BEAUFORT—Dr. Joshua Tayloe, Washington. Two cases of typhoid fever. All but one of the prisoners in jail are at work in the lower part of the county on the public roads.

BERTIE—Dr. H. V. Dunstan, Windsor. Slight bowel troubles in several parts.

BLADEN—Dr. Newton Robinson, Elizabethtown. Bowel troubles and bilious fever caused by excessively hot, dry weather.

BRUNSWICK—Dr. D. I. Watson, Southport. Five cases of whooping cough and one of typhoid fever. Some dysentery in the county home; suitable food for the sick is not served.

BUNCOMBE—Dr. E. C. Starnes, Asheville. Some measles and whooping cough.

BURKE—Dr. J. L. Laxton, Morganton. Diarrhœa and dysentery in nearly all parts.

CABARRUS—Dr. Robert S. Young, Concord. Six cases of typhoid fever. Bowel troubles and malarial fevers in all parts.

CALDWELL—Dr. A. A. Kent, Lenoir. Ten cases of measles, five of whooping cough and one of typhoid fever. A mild epidemic of dysentery throughout the county.

CAMDEN—No Board of Health.

CARTERET—Dr. George N. Ennett, Beaufort. Malarial troubles in many parts.

CASWELL—Dr. W. O. Spencer, Yanceyville. Some cholera infantum and other bowel troubles.

CATAWBA—Dr. D. McD. Yount, Newton. Measles epidemic. Gastric catarrh in all parts. There is a form of continued fever prevalent through this section which seems to be entirely different from typhoid and other forms described in works on Practice of Medicine.

CHATHAM—No report.

CHEROKEE—Dr. J. F. Abernathy, Murphy. Five cases of diphtheria.

CHOWAN — Dr. R. H. Winborne, Rockyhook. One case of typhoid fever. Diarrhœa and dysentery in all parts. Some cholera in hogs and chickens and distemper in horses. There is want of proper drainage of the swamps and lowlands.

CLAY—Dr. W. E. Sanderson, Hayesville. A few cases of dysentery. Very little sickness.

CLEVELAND—Dr. O. P. Gardner, Shelby. Some whooping cough.

COLUMBUS—Dr. I. Jackson, Whiteville. Many cases of measles, some of whooping cough and mild diarrhœa and one of typhoid fever. Hog cholera epidemic in some sections.

CRAVEN—Dr. J. W. Duguid, Newbern. Ten cases of measles and one of scarlatina. The public building presents an admirable appearance, all the

brick work having been completed. The county court house has been much improved by the addition of stone porches to all three entrances, grading the front yard and sowing with grass.

CUMBERLAND—Dr. J. Vance McGougan, Fayetteville. Measles (8), whooping cough (5) and mumps in certain parts.

CURRITUCK—No Board of Health.

DARE—Dr. W. B. Fearing, Manteo. Dysentery and malarial fevers in Croatan.

DAVIDSON—Dr. John Thames, Lexington. Twenty cases of measles and two of typhoid fever. Malaria and bowel troubles in all parts.

DAVIE—Dr. James McGuire, Mocksville. Diarrhœa and dysentery. The condition of the jail is as good as the old structure will permit.

DUPLIX—Dr. J. C. Grady, Magnolia. Twelve cases of measles, in different parts.

DURHAM—Dr. John M. Manning, Durham. Measles, dysentery and pertussis in nearly all parts.

EDGECOMBE—Dr. Donald Williams, Tarboro. Mild diarrhœas in all parts. A few cases of mumps, whooping cough and intermittent fever.

FORSYTH—Dr. E. F. Strickland, Bethania.

FRANKLIN—Dr. E. S. Foster, Louisville. Dysentery has prevailed generally, with very little fatality. A few cases of typhoid fever. Chicken pox and whooping cough in some sections including this town.

GATES—No Board of Health.

GASTON—Dr. J. H. Jenkins, Dallas. Three cases of typhoid fever. Diar-

rhœa and dysentery in some parts. One case of pneumonia.

GRAHAM—No Board of Health.

GRANVILLE—Dr. Wm. O. Baskerville, Oxford. Measles and dysentery in some parts.

GREENE—Dr. Joseph E. Grimsley, Snow Hill. Two cases of measles. Dysentery and malarial fever in all parts.

GUILFORD—Dr. W. J. Richardson, Greensboro. Dysentery and diarrhœal diseases in Greensboro; no reports from physicians out of town. The jail is filthy and not fit to confine human beings in. The county home is ample and well kept. The convicts on the roads are well cared for and doing good work.

HALIFAX—Dr. I. E. Green, Weldon. Diarrhœa, dysentery and a few cases of malarial fever in some parts.

HARNETT—Dr. J. F. McKay, Dickinson, Reporter.

HAYWOOD—Dr. J. Howell Way, Waynesville. Little sickness save mild diarrhœa.

HENDERSON—No Board of Health.

HERTFORD—Dr. John W. Tayloe, Union. Two cases of typhoid fever. Dysentery in all sections heard from.

HYDE—No Board of Health.

IREDELL—Dr. W. J. Hill, Statesville. Nine cases of measles, some whooping cough and bowel troubles. One case of typhoid fever. The lands along Rocky Creek in Olin township are yet in a dangerous condition. The people are timid and slow to take hold.

JACKSON—Dr. W. F. Tompkins, Webster. Measles (26), whooping cough (18) and considerable diarrhœa.

JOHNSTON—Dr. R. J. Noble, Selma.

One case of pernicious malarial fever. An epidemic of hog and chicken cholera.

JONES—No report.

LENOIR—Dr. James M. Parrott, Kinston. Measles, diarrhœa and dysentery in all parts.

LINCOLN—Dr. Thos. F. Costner, Lincoln. Five cases of measles. Dysentery in all parts.

MCDOWELL—Dr. Geo. I. White, Marion. Measles and whooping cough in nearly all parts. Five cases of typhoid fever.

MACON—Dr. S. H. Lyle, Franklin. Twelve cases of measles. Whooping cough in all parts.

MADISON—Dr. Jas. K. Hardwicke, Marshall. Six cases of typhoid fever. Bowel troubles in most parts.

MARTIN—Dr. W. H. Harrell, Williams. Mild bowel troubles in all parts.

MECKLENBURG—Dr. H. M. Wilder, Charlotte. "Malarial troubles" in and around Charlotte. The city is defraying expenses of cleaning out and canalling Sugar Creek east of the city, which I think will eventually improve that portion of the town and county. Part of our sewerage empties into this creek, and cleaning it out will assist in allowing it to be washed out clean. The sanitary condition of the "Little" convict camp is especially good and fairly good in the other.

MITCHELL—Dr. C. E. Smith, Bakersville. Measles (200) epidemic in all parts. Ten cases of whooping cough. A few cases of cholera morbus and cholera infantum and more of summer diarrhœa of children. A new jail is badly needed.

MONTGOMERY—Dr. W. A. Simmons,

Troy. Five cases of measles and one of typhoid fever. Little sickness.

MOORE—Dr. Gilbert McLeod, Carthage. Measles and mumps decreasing in number. Some dysentery and other gastro-intestinal troubles. The jail needs better ventilation in the cells and a sewerage system.

NASH—Dr. J. J. Mann, Nashville. Dysentery in all parts.

NEW HANOVER—Dr. J. C. Shepard, Wilmington. Typhoid fever (13) and hemorrhagic malarial fever (2). Diarrhœa (8) and malarial fever in all parts. A few cases of measles and mumps. The prisoners in the house of correction are crowded but confined at night only.

NORTHAMPTON—Dr. H. W. Lewis, Jackson. One case of hemorrhagic malarial fever. Dysentery in all parts.

ONslow—Dr. E. L. Cox, Jacksonville. Twelve cases of whooping cough. Malarial fevers in all parts. The jail is in better condition; the iron work has been painted and a new sewer put in.

ORANGE—Dr. D. C. Parris, Hillsboro. Measles, mumps and bowel diseases in all parts.

PAMLICO—No Board of Health.

PASQUOTANK—Dr. J. E. Wood, Elizabeth City. One case of scarlatina and one of typhoid fever. Dysentery.

PENDER—Dr. Geo. F. Lucas, Currie. Dysentery in all parts.

PERQUIMANS—Dr. J. W. Speight, Hertford. Diarrhœa and dysentery.

PERSON—Dr. J. A. Wise, Roxboro. Four cases of measles. Diarrhœa and dysentery in all parts.

PITT—Dr. Frank W. Brown, Greenville. Bowel troubles and malarial diseases.

POLK—Dr. C. J. Kenworthy, Tryon. No diseases to report.

RANDOLPH—Dr. T. T. Ferree, Ashboro. Twenty cases of measles and five of typhoid fever. Some bowel troubles.

RICHMOND—Dr. W. H. Steele, Rockingham. Many cases of measles and a few of mumps.

ROBESON—Dr. T. A. Norment, Jr., Lumberton. No diseases reported.

ROCKINGHAM—Dr. D. W. Courts, Reidsville. No diseases reported.

ROWAN—Dr. John Whitehead, Salisbury. Two cases of typhoid fever and one of hemorrhagic malarial fever. Measles, whooping cough and mumps in all parts.

RUTHERFORD—Dr. E. B. Harris, Rutherfordton. A few cases of measles and whooping cough. Some diarrhœa and dysentery in the eastern part.

SAMPSON—Dr. Jno. A. Stevens, Clinton. A few cases of whooping cough and chicken pox, a great many of measles, four of typhoid fever and two of diphtheria. Some malarial fever and a great deal of bowel trouble.

STANLY—Dr. D. P. Whitley, Millington. Two cases of typhoid fever and a few of mumps. Some cholera morbus and cholera infantum. Diarrhœa and dysentery in all parts.

STOKES—Dr. W. L. McCanless, Danbury. One case of typhoid fever. Enterocolitis in all parts.

SURRY—Dr. John R. Woltz, Dobson. One case of measles and four of typhoid fever. Dysentery in nearly all parts. One case of spinal meningitis with fatal results. The county home is being scoured and whitewashed.

SWAIN—Dr. A. M. Bennett, Bryson City. No diseases reported.

TRANSYLVANIA—Dr. M. M. King, Brevard. No diseases reported.

TYRRELL—Dr. B. W. Cohn, Columbia. No report.

UNION—Dr. J. E. Ashcraft, Union. Typhoid fever (15 or 20). Dysentery in epidemic form all over the county.

VANCE—Dr. J. H. Tucker, Henderson. Measles, whooping cough, diarrhoea and dysentery of mild type in many parts. Four cases of typhoid fever in the Townsville section.

WAKE—Dr. P. E. Hines, Raleigh. Seventy-nine cases of measles, twenty of whooping cough and three of typhoid fever. Diarrhoea, dysentery and malarial fevers in all parts heard from. Thirty postal cards were sent to physicians and eight reports received.

WARREN—Dr. Geo. A. Foote, Warrenton. Ten cases of measles. Mild diarrhoea. Distemper in horses.

WASHINGTON—No Board of Health.

WATAUGA—Dr. W. B. Council, Boone. Twenty cases of measles and two of typhoid fever. One death occurred in jail from measles.

WAYNE—Dr. W. J. Jones, Jr., Goldsboro. Malarial fever. Slight epidemic of chicken cholera.

WILKES—Dr. J. M. Turner, Wilkesboro. Three cases of measles and one of typhoid fever. Diarrhoea and dysentery in nearly all parts.

WILSON—Dr. N. Anderson, Wilson. No diseases reported.

YADKIN—Dr. T. R. Harding, Yadkinville. A few cases of measles and typhoid fever.

YANCEY—Dr. J. L. Ray, Burnsville. Some whooping cough and typhoid fever. Several cases of typhoid fever

in and around the jail. The jail itself has been kept pretty clean for some time, but I think the filth deposited in the jail lot is the trouble. One prisoner died in the jail, and now a damage suit is pending. I have been informed that two other prisoners who escaped took typhoid fever and died. There are no prisoners in jail now. The jailer has moved out—says he would not live there at all during the hot months. The home is about as usual. It is never kept as it should be.

Review of Diseases Reported for May, 1896.

BOWEL DISEASES*—From Bertie, Bladen, Burke, Cabarrus, Caswell, Chowan, Columbus, Davidson, Davie, Edgecombe, Gaston, Guilford, Halifax, Haywood, Iredell, Jackson, Lenoir, Madison, Martin, Moore, New Hanover, Orange, Perquimans, Person, Pitt, Randolph, Rutherford, Sampson, Stanly, Stokes, Vance, Wake and Warren—33 counties.

CHOLERA INFANTUM—From Caswell, Mitchell and Stanly.

CHOLERA MORBUS—From Mitchell and Stanly.

CHOLERA, IN CHICKENS—From Chowan and Johnston.

CHOLERA, IN HOGS—From Chowan, Columbus and Johnston.

DIPHTHERIA—From Cherokee and Sampson.

DISTEMPER, IN HORSES—From Warren.

DYSENTERY — From Alleghany, Brunswick, Burke, Caldwell, Chowan, Clay, Dare, Davie, Durham, Franklin, Gaston, Granville, Greene, Guilford, Halifax, Hertford, Lenoir, Lincoln, Nash, Northampton, Pasquotank, Pen-

der, Perquimans, Person, Rutherford, Stanly, Stokes, Surry, Union, Vance and Wake—31 counties.

MALARIAL FEVER—From Bladen, Cabarrus, Carteret, Dare, Davidson, Edgecombe, Greene, Halifax, Johnston, Mecklenburg, New Hanover, Northampton, Onslow, Pitt, Rowan, Sampson, Wake and Wayne—18 counties.

MALARIAL FEVER, HEMORRHAGIC—From New Hanover and Rowan.

MALARIAL FEVER, PERNICIOUS—From Johnston.

MEASLES—From Alexander, Alleghany, Buncombe, Caldwell, Catawba, Columbus, Craven, Cumberland, Davidson, Duplin, Durham, Granville, Greene, Iredell, Jackson, Lenoir, Lincoln, McDowell, Macon, Mitchell, Montgomery, Moore, New Hanover, Orange, Person, Randolph, Richmond, Rowan, Rutherford, Sampson, Surry, Vance, Wake, Warren, Watauga, Wilkes and Yadkin—37 counties.

MUMPS—From Cumberland, Edgecombe, Moore, New Hanover, Orange, Richmond, Rowan and Stanly—8 counties.

PNEUMONIA—From Gaston.

SCARLATINA—From Craven and Pasquotank.

TYPHOID FEVER—From Brunswick, Cabarrus, Caldwell, Chowan, Columbus, Davidson, Franklin, Gaston, Hert-

ford, Iredell, McDowell, Montgomery, New Hanover, Pasquotank, Randolph, Rowan, Sampson, Stanly, Stokes, Surry, Union, Vance, Wake, Watauga, Wilkes, Yadkin and Yancey—28 counties.

VARICELLA—From Franklin and Sampson.

WHOOPIING COUGH—From Alexander, Brunswick, Buncombe, Caldwell, Cleveland, Columbus, Cumberland, Durham, Edgecombe, Franklin, Iredell, Jackson, McDowell, Macon, Mitchell, Onslow, Rowan, Rutherford, Sampson, Vance, Wake and Yancey—22 counties.

*Cholera infantum, cholera morbus and dysentery, when mentioned by reporters, are given separate headings.

Summary of Mortuary Reports for May, 1896. (Twenty-seven towns.)

	White.	Col'd.	Total.
Aggregate population.....	86,422	61,613	148,035
Aggregate deaths.....	131	146	277
Representing annual death rate per 1000.....	18.2	26.8	22.4
<i>Causes of Death.</i>			
Typhoid Fever.....	5	0	5
Malarial Fever.....	0	2	2
Whooping Cough.....	4	3	7
Measles.....	8	3	11
Pneumonia.....	5	10	15
Consumption.....	13	24	37
Brain diseases.....	9	6	15
Heart diseases.....	10	11	21
Neurotic diseases.....	3	1	4
Diarrhoeal diseases.....	33	26	59
All other diseases.....	41	56	97
Accident.....	0	4	4
	131	146	277
Deaths under 5 years.....	46	59	105
Still-born.....	8	6	14

Condition of Jails and County Homes by Counties for May, 1896.

COUNTIES.	JAIL.					HOME.				
	General Sanitary Condition.	Number Prisoners confined.	Space allotted each, (in cubic feet.)	Number giving evidence of successful vaccination.	Number who can read and write.	General Sanitary Condition.	Number inmates.	Space allotted each, (in cubic feet.)	Number giving evidence of successful vaccination.	Number who can read and write.
Alamance...	good	34 (a)	.....	.....	.....	good	33	.....	.....	.....
Alexander ..	very good	3	.....	.....	.....	very good	5	.....	.....	2
Alleghany...	.....	.....	.....	.....	.....	.....	9	.....	.....	.....
Anson .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Ashe .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Beaufort .....	.....	1	.....	.....	.....	.....	12	.....	.....	.....
Bertie .....	.....	12 (b)	.....	.....	7	.....	15	.....	.....	2
Bladen	no change	0	.....	.....	.....	no change	6	.....	.....	.....
Brunswick ..	no change	1	.....	.....	.....	+	13	.....	.....	.....
Buncombe ..	very good	112 (c)	600	18	73	very good	41	*	19	16
Burke.....	no change	6	.....	.....	.....	no change	14	.....	.....	.....
Cabarrus	good	24 (d)	*	0	8	good	23	*	12	12
Caldwell.....	.....	6	*	0	4	.....	6	*	1	2
Camden .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Carteret	fair	.....	.....	.....	.....	.....	0	.....	.....	.....
Caswell	no change	4	.....	.....	.....	no change	27	.....	.....	.....
Catawba	well kept	2	*	0	1	well kept	36	*	12	12
Chatham .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Cherokee....	no change	6	.....	.....	.....	no change	5	.....	.....	.....
Chowan	good	10	*	0	3	good	5	*	0	0
Clay.....	.....	2	.....	.....	.....	.....	.....	.....	.....	.....
Cleveland ...	very good	7	.....	.....	3	very good	20	.....	.....	6
Columbus ...	good	4	*	.....	2	good	12	*	.....	0
Craven	good	11	.....	.....	.....	good	21	.....	.....	.....
Cumberland ..	.....	11	.....	.....	.....	.....	19	.....	.....	.....
Currituck ..	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Dare .....	.....	0	.....	.....	.....	.....	0	.....	.....	.....
Davidson....	good	5	.....	.....	.....	good	26	.....	.....	3
Davie	+	5	.....	1	1	good	9	.....	2	0
Duplin.....	fair	1	500	.....	.....	fair	15	450	2	2
Durham	good	37 (e)	*	.....	.....	good	18	*	.....	.....
Edgecombe ..	fair	4	*	0	0	fair	20	*	2	1
Forsyth.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

* Space exceeds 1,000 cubic feet. + See Summary of Reports from County Superintendents of Health. (a) Includes 13 in House of Correction. (b) Includes 7 in House of Correction. (c) Includes 80 in House of Correction. (d) Includes 15 in House of Correction. (e) Includes 30 in House of Correction.

Condition of Jails and County Homes by Counties.—CONTINUED.

COUNTIES.	JAIL.					HOME.				
	General Sanitary Condition.	Number Prisoners confined.	Space allotted each. (In cubic feet.)	Number giving evidence of successful vaccination.	Number who can read and write.	General Sanitary Condition.	Number inmates.	Space allotted each. (In cubic feet.)	Number giving evidence of successful vaccination.	Number who can read and write.
Franklin	no change	6				no change	29			
Gaston										
Gates										
Graham										
Granville	good	5	600	0	3	good	28	600	3	4
Greene	good					good	8	1,000	4	4
Guilford	†	54 (a)				good	43			
Halifax		7	1,000	1	1		41		5	4
Harnett										
Haywood		20		0	13		7			
Henderson										
Hertford		0				no change	9	*	0	2
Hyde										
Iredell	no change					no change				
Jackson		9	880	3	5		4	*	1	1
Johnston		7	1,000				13	1,000		
Jones										
Lenoir	fair	3					0			
Lincoln	good	1	*	0	0	good	22	600	13	6
McDowell										
Macon										
Madison	not good	10	400	4	7	not good	20	500	9	12
Martin	no change	3	*	0	0	no change	14	*	5	0
Mecklenburg	good	89 (b)	1,000			good †	57	1,000		
Mitchell	only fair	6				very good	6			
Montgomery	very good	0				very good	19	500		
Moore	†	11	1,000	7	8	good	5	*	1	2
Nash	good	3	600		3	good	26	1,000	7	8
New Hanover	good	43 (c)	500 †		33	good	28	*	28	9
Northampton	good	6	1,000	3	3	good	42	800	10	12
Onslow	†	2				good	6			
Orange	not good	5	500	0	5	good	15	1,000	7	9
Pamlico										

* Space exceeds 1,000 cubic feet. † See Summary of Reports from County Superintendents of Health. (a) Includes 32 in House of Correction. (b) Includes 74 in House of Correction. (c) Includes 19 in House of Correction.

Condition of Jails and County Homes by Counties.—CONTINUED.

COUNTIES.	JAIL.					HOME.				
	General Sanitary Condition.	Number Prisoners confined.	Space allotted each, (In cubic feet.)	Number giving evidence of successful vaccination.	Number who can read and write.	General Sanitary Condition.	Number inmates.	Space allotted each, (In cubic feet.)	Number giving evidence of successful vaccination.	Number who can read and write.
Pasquotank.....	good	1	.....	.....	.....	good	26	.....	.....	.....
Pender.	good	0	.....	.....	.....	good	4	.....	0	0
Perquimans ..	.....	0	.....	.....	.....	.....	6	.....	.....	.....
Person.	fair	6	.....	.....	1	fair	11	.....	.....	2
Pitt. ....	.....	12	*	.....	.....	.....	22	*	.....	2
Polk.....	good	1	*	0	.....	.....	0	.....	.....	.....
Randolph	no change	8	.....	.....	6	no change	35	.....	.....	7
Richmond.....	fair	28	543	0	20	fair	20	*	0	8
Robeson.....	good	23 (a)	.....	.....	.....	good	12	.....	.....	.....
Rockingham . .	good	.....	.....	.....	.....	good	.....	.....	.....	.....
Rowan.	good	1	*	0	1	fair	21	700	9	6
Rutherford .....	.....	4	.....	.....	.....	.....	20	.....	.....	.....
Sampson	good	0	.....	.....	.....	good	16	.....	.....	.....
Stanly	good	3	*	0	2	good	8	*	0	2
Stokes	good	5	500	1	2	good	13	600	4	5
Surry .....	.....	6	485	1	4	.....	22	*	3	3
Swain .....	.....	18	(b)	1	18	good	6	750	1	0
Transylvania ..	fair	3	*	0	1	fair	5	*	0	1
Tyrrell .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Union	very good	16	.....	.....	.....	very good	25	.....	.....	.....
Vance	very good	5	*	2	2	excellent	13	*	2	2
Wake	good	94 (c)	.....	.....	.....	good	70	.....	.....	.....
Warren	good	3	.....	0	3	good	23	.....	4	5
Washington .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Watauga.	good	4	.....	.....	.....	good	7	.....	.....	.....
Wayne.	good	5 (b)	.....	.....	1	good	13	.....	.....	1
Wilkes.....	no change	8	.....	.....	.....	no change	11	.....	.....	.....
Wilson.....	.....	13	.....	3	4	.....	25	.....	2	4
Yadkin	fair	4	.....	0	1	good	20	.....	0	7
Yancey.....	+	0	.....	.....	.....	.....	2	*	0	.....

* Space exceeds 1,000 cubic feet. + See Summary of Reports from County Superintendents of Health. (a) Includes 13 in House of Correction. (b) Too Crowded. (c) Includes 74 in House of Correction. (d) Includes 2 in House of Correction.

Mortuary Report for May, 1896.

TOWNS AND REPORTERS.	RACES.	POPULATION.		TEMPORARY ANNUAL DEATH RATE PER 1,000.		Typhoid Fever.	Scarlet Fever.	Malarial Fever.	Diphtheria.	Whooping Cough.	Measles.	Pneumonia.	Consumption.	Brain Diseases.	Heart Diseases.	Neurotic Diseases.	Diarrhoeal Diseases.	All Other Diseases.	Accident.	Suicide.	Violence.	TOTAL DEATHS.	
		By Races.	Total.	By Races.	Total.																	By Towns.	Deaths under 5 years. Still Born.
Asheville.....	White.	8,000		13.5							1	3	4									9	1
Dr. E. C. Starnes	Colored.	4,000	12,000	3.0	10.0																	1	1
CHARLOTTE	White.	10,855		18.8								1	1	1			10	4				17	6
C. A. Spratt, H. Off'r	Colored.	8,796	19,651	31.8	20.2									2			5	4	3			33	10
Durham.....	White.	4,000		42.0							6		1	1	3		2	1				14	9
Dr. J. M. Manning.	Colored.	2,000	6,000	6.0	30.0																	15	1
FAYETTEVILLE	White.	3,500		6.9													1					1	
Dr. J. V. McGougan.	Colored.	2,500	6,000	14.4	10.0					1												3	1
GOLDSBORO	White.	3,700		9.7													1	1				3	8
T. H. Bain, Secretary	Colored.	1,700	5,400	35.3	17.8									1			1	3				5	4
GREENSBORO	White.	5,500		13.1													6					6	3
J. S. Michaux, City Clk	Colored.	2,500	8,000	38.4	21.0						1	1	3		1		1	1				14	3
HENDERSON	White.	2,250		16.0												1		2				3	1
Dr. W. J. Judd.	Colored.	2,000	4,250	0.0	8.5																	0	
HILLSBORO	White.	400		30.0										1								1	
Dr. D. C. Parris.	Colored.	300	700	40.0	34.3								1									2	
JACKSONVILLE	White.	200		0.0																		0	
Dr. E. L. Cox.	Colored.	100	300	0.0	0.0																	0	
LENOIR	White.	800		43.7										1	1	1						3	
Dr. A. A. Kent.	Colored.	300	1,100	0.0	12.7																	0	
MARION	White.	800		0.0																		0	
Dr. Geo. I. White.	Colored.	200	1,000	0.0	0.0																	0	
MONROE	White.	1,800		0.0																		0	
Dr. J. M. Blair.	Colored.	600	2,400	20.0	5.0		1															1	
OXFORD	White.	1,600		15.0									1				2					2	5
Dr. W. O. Baskerville.	Colored.	1,400	3,000	25.7	20.0																	5	1
RALEIGH	White.	7,200		23.3								3	2	2	1	3	5					14	5
T. P. Sale, Clerk B. H.	Colored.	6,000	13,200	48.0	34.5						1	3	4	3	2	1	10					24	12
ROCKY MOUNT	White.	1,600		30.0												4						4	
Dr. G. L. Wimberley.	Colored.	800	2,400	0.0	20.0																	0	
SALEM	White.	3,942		15.2								1	1			1	2					5	3
C. S. Hauser H. Officer	Colored.	342	4,284	70.2	19.6																	7	
SALISBURY	White.	3,500		20.6		1		3		1			1			1						6	4
Dr. John Whitehead.	Colored.	1,500	5,000	64.0	33.6			2		1	2				3							8	5
SCOTLAND NECK	White.	775		15.5											1							1	
Mayor J. A. Perry.	Colored.	425	1,200	56.4	30.0												1	1				2	1
SOUTHPORT	White.	800		15.0																		1	
W. H. Pike, City Clk.	Colored.	400	1,200	50.0	20.0																	1	
Statesville.....	White.	2,500		33.6																		1	
Dr. W. J. Hill.	Colored.	1,000	3,500	168.0	72.0																	14	21
TARBORO	White.	1,300		0.0																		0	
Dr. Donald Williams	Colored.	1,200	2,500	10.0	5.0									1								1	
WARRENTON	White.	1,000		24.0												1	1					2	
Dr. G. A. Foote.	Colored.	500	1,500	0.0	16.0																	0	
WASHINGTON	White.	3,000		20.0		1										2	2					5	9
Dr. Joshua Tayloe.	Colored.	2,500	5,500	19.2	19.6								1			1	2					4	
WELDON	White.	700		0.0																		0	
Mayor J. T. Gooch.	Colored.	750	1,450	16.0	8.3																	1	
WILMINGTON	White.	9,000		25.3		2			1		3	1	1		6	5						19	7
Dr. J. C. Shepard.	Colored.	13,000	22,000	26.8	26.2		1		1	1	7	2	1		7	9						29	48
WILSON	White.	2,500		9.6					1													2	2
Dr. N. Anderson.	Colored.	2,000	4,500	12.0	10.7																	2	1
WINSTON	White.	5,200		11.5		1						1		1		2						5	2
Dr. John Bynum.	Colored.	4,800	10,000	47.5	26.8							3	4		2	6	4					19	7

*Visitors.

N. B. The reporters for the cities and towns printed in bold faced type have signed this certificate: "I hereby certify that this report gives the whole number of deaths occurring within the corporate limits during the above month."

METEOROLOGICAL SUMMARY FOR NORTH CAROLINA, MAY, 1896.

Furnished by the North Carolina Agricultural Experiment Station and State Weather Service.

H. B. BATTLE, PH. D., DIRECTOR.

C. F. VON HERRMANN, METEOROLOGIST.

STATIONS.	TEMPERATURE, (DEGREES FAHR.)								Mean Rel. Humidity.	Total Precipitation.	NO. OF DAYS.				Prevailing Wind.	
	Monthly Mean.	Highest.	Date.	Mean Maximum.	Lowest.	Date.	Mean Minimum.	Monthly Range.			Mean Daily Range.	Clear.	Partly Cloudy.	Cloudy.		Rainy.
Asheville.....	68.6	89	10 19	83.9	47	7	53.4	52	30.5	80.6	4.11	21	5	5	8	N W W
Beaufort.....	72.8	91	11	78.2	48	9	67.5	43	10.7	.....	0.87	15	7	9	9	S W
Chapel Hill.....	73.9	98	11	85.9	47	8	61.9	51	24.0	.....	6.80	16	10	5	12	W
Charlotte.....	75.2	95	11	86.1	49	8	64.4	46	21.7	64.2	1.68	16	12	3	10	S
Edenton.....	71.4	92	11	80.1	43	8 9	62.6	49	17.5	.....	5.64	9	18	4	11	S E
Horse Cove.....	68.8	86	10 11	79.6	45	8	58.1	41	21.5	.....	7.19	12	17	2	13	S W
Littleton.....	72.2	96	9 10	84.1	40	7	60.2	56	23.9	.....	5.71	8	3	14	14	S W
Lenoir.....	71.4	88	17	80.0	56	9	64.4	32	15.6	.....	2.80	13	15	3	6	S W
Louisburg.....	73.0	96	11	83.8	46	8	62.3	50	21.5	.....	7.00	.....	.....	.....	12	.....
Mt. Airy.....	70.4	93	11 17	83.4	45	30	57.4	48	26.0	.....	1.60	5	6	20	8	S W
Mt. Pleasant.....	74.2	96	11	86.5	47	8	62.0	49	24.5	.....	2.48	8	7	16	5	S W
Marion.....	72.7	92	10 17	83.9	52	30	61.5	40	22.4	.....	2.98	4	27	0	11	W
Newbern.....	74.6	96	13	83.2	45	8 9	65.9	51	17.4	.....	1.99	.....	.....	.....	11	.....
Oak Ridge.....	72.7	96	11	84.8	46	8	60.6	50	24.2	.....	3.63	22	7	2	8	S W
Pittsboro.....	72.5	93	11	83.4	44	7	61.6	49	21.8	.....	5.50	12	13	6	9	S W
Raleigh.....	74.0	95	11	84.1	46	8	63.8	49	21.3	72.0	6.53	10	13	8	14	S W
Rockingham.....	76.1	99	11	88.3	49	8	63.9	50	24.4	.....	3.75	.....	.....	.....	10	W
Roxboro.....	71.9	95	18	84.0	46	7	59.8	49	24.2	.....	4.30	15	10	6	7	.....
Soapstone Mount..	70.7	95	11	84.9	40	8	56.5	55	28.4	.....	5.10	5	16	10	13	S W
Saxon.....	73.4	98	11	87.1	45	7	59.8	53	27.3	.....	4.26	8	16	7	11	N E
Selma.....	74.4	97	19	85.7	45	8	63.0	52	22.7	.....	3.90	.....	.....	.....	8	.....
Salisbury.....	75.6	97	11	87.7	53	7 8	63.6	44	24.1	.....	0.98	6	21	4	9	S W
Tarboro.....	74.0	99	11	87.1	40	9	60.9	59	26.2	.....	8.56	13	12	6	12	S
Willeiton.....	71.6	94	11 18	81.8	40	8	61.5	54	20.3	.....	10.61	9	15	7	12	S
Weldon.....	73.4	97	11	84.2	44	8	62.6	53	21.6	.....	7.23	7	16	8	13	S
Wilmington.....	74.4	96	12	83.1	44	8	65.8	52	17.3	78.3	3.13	10	18	3	9	S W

State Meteorological Summary for May, 1896.

Mean barometer 30.06 inches; normal for May 30.04. Highest barometer 30.38 on the 8th at Raleigh. Lowest barometer 29.80 on the 31st at Kitty Hawk. Mean temperature 72.2 degrees; normal for May 67.0. Highest temperature 99 on the 11th at Tarboro and Rockingham. Lowest temperature 39 on the 30th at Linville. Average rainfall 4.28 inches; normal for May 4.34 inches. Greatest monthly rainfall 11.22 inches at Falkland; least monthly rainfall 0.52 inches at Southport. Average number of clear days 12; partly cloudy 12; cloudy 7; rainy 10. Prevailing wind direction Southwest. Average velocity 7.4 miles per hour. Normal direction for May Southwest; normal velocity 7.8 miles per hour.



BULLETIN

OF THE

NORTH CAROLINA BOARD OF HEALTH.

Published Monthly at the Office of the Secretary of the Board, at Raleigh, N. C.

GEO. G. THOMAS, M. D., *Pres.*,.....Wilmington.
 S. WESTRAY BATTLE, M. D.,.....Asheville.
 W. H. HARRELL, M. D.,.....Williamston.
 JOHN WHITEHEAD, M. D.,.....Salisbury.

W. P. BEALL, M. D.,.....Greensboro.
 W. J. LUMSDEN, M. D.,.....Elizabeth City.
 PROF. F. P. VENABLE,.....Chapel Hill.
 J. C. CHASE, CIV. ENG.,.....Wilmington.

RICHARD H. LEWIS, M. D., *Secretary and Treasurer*, Raleigh.

VOL. XI.

JULY, 1896.

No. 4.

Typhoid Fever.

The fact that nearly twice as many counties reported typhoid fever this month as did last suggests the advisability of calling attention again to the importance on the part of both physicians and householders of carefully looking after the means of preventing its spread.* When it is remembered that 50,000 people die annually in the United States from this disease, of which North Carolina's quota would be about 1,000, to say nothing of constitutions shattered, of the suffering, anxiety, expense and loss of time, the gravity of the subject is apparent and no excuse for repeatedly directing the attention of both the profession and the people to their duty in relation thereto is necessary. Enteric fever is by long odds the most fatal of all the preventable diseases which occur within our borders. And it is undoubtedly preventable, in large measure certainly, and, too, by very simple and inexpensive methods. That the drinking water is

the medium of transmission in an immense majority of the cases, and that the water is contaminated by the undischarged bowel discharges of another case is practically demonstrated. So that the preventive measures necessary may be summed up in an immediate change to a water supply clearly beyond the risk of contamination, or boiling the home supply, and in promptly and thoroughly disinfecting the bowel discharges and the soiled linen. Simple and cheap methods of doing this are clearly set forth in the "Instructions for Quarantine and Disinfection," as well as in the pamphlet entitled "The Importance of Disinfecting the Bowel Discharges in Typhoid Fever," both of which have been widely distributed by the Board. But they have necessarily reached only a very small proportion of the people, and then in most instances when, there being no typhoid or other infectious disease present in the family or immediate neighborhood of the reader, they

would probably make comparatively little impression. If, however, the enemy is in sight, or, still more, if he has already attacked one of our own dear ones, we would read with much more care and appreciation, and earnestly put into energetic action, the instructions given for conquering the dread invader. With this idea in mind we have mailed to those superintendents reporting a number of cases of typhoid a package of the pamphlet on that subject and we earnestly hope that they will see to their prompt distribution among the families having the disease and those near by and liable to become infected. We also beg every one of our readers who knows of a case of typhoid fever in his neighborhood to send us the address of the head of the family that we may mail him direct pertinent sanitary literature, or inform us how many copies he will personally distribute. We are extremely anxious to strike while the iron is hot, that we may make as deep an impression as possible; but we can't strike the iron if we do not know where it is. Won't you do this, and not improbably by writing a few lines on a postal card save one or more lives?

In order to assist in locating the origin of typhoid fever, and checking its further spread when occurring in more or less epidemic form. (the means at the disposal of the Board would not permit it in sporadic cases,) arrangements have been made with Drs. Albert Anderson, of Wilson, and W. T. Pate, of Gibson Station, for bacteriological examinations of suspected drinking water. On the back of the permit for this analysis the following appears:

"Parties desiring a bacteriological examination of drinking water must first apply to the Superintendent of

Health of his county, (or to the *medical* health officer of his city or town if it have one) who will, if in his opinion there be just cause to suspect said drinking water as the source of disease, write to the Secretary of the State Board of Health, giving his reasons for such suspicion. Should they be satisfactory to the latter he will forward this permit either to said Superintendent, or such other physician as he may designate. The sample must be taken and packed by a *physician*, in strict accordance with the following directions:" Here follow specific directions for taking and shipping samples.

DR. ANDERSON.

Alamance.
Beaufort.
Buncombe.
Burke.
Camden.
Carteret.
Caswell.
Chowan.
Craven.
Currituck.
Davidson.
Davie.
Duplin.
Durham.
Edgecombe.
Gates.
Granville.
Greene.
Guilford.
Halifax.
Haywood.
Hertford.
Johnston.
Jones.
Lenoir.
Madison.
Martin.
Nash.

DR. PATE.

Alexander.
Alleghany.
Anson.
Ashe.
Bertie.
Bladen.
Brunswick.
Cabarrus.
Caldwell.
Catawba.
Chatham.
Cherokee.
Clay.
Cleveland.
Columbus.
Cumberland.
Dare.
Forsyth.
Franklin.
Gaston.
Graham.
Harnett.
Henderson.
Hyde.
Iredell.
Jackson.
Lincoln.
McDowell.

Onslow.	Macon.
Orange.	Mecklenburg.
Pamlico.	Mitche
Pasquotank.	Mon ry.
Pender.	Moore.
Perquimans.	New Hanover.
Person.	Northampton.
Pitt.	Polk.
Rockingham.	Randolph.
Rowan.	Richmond.
Sampson.	Robeson.
Swain.	Rutherford.
Tyrrell.	Stanly.
Wake.	Stokes.
Washington.	Surry.
Watauga.	Transylvania.
Wayne.	Union.
Wilson.	Vance.
	Warren.
	Wilkes.
	Yadkin.
	Yancey.

We would suggest to our medical readers to preserve this copy of the BULLETIN so that they may have their hands on this information when needed.

Summary of Reports from County Superintendents of Health, for June, 1896, (seventy-nine counties reporting).

In the blanks on which these reports are made the following items are called for :

1. The number of cases of small-pox, measles, whooping cough, scarlatina, diphtheria, typhoid fever, pernicious malarial fever, hemorrhagic malarial fever, yellow fever and cholera which have occurred in the county during the past month.

2. The diseases which have been prevalent in the county, and in what parts.

3. Epidemics among domestic animals.

4. Remarks as to special unsanitary conditions in the county.

In few counties do physicians generally report these details to the Superintendent, though furnished with blanks for that purpose, and in most cases he has to depend upon himself alone in making his report.

Details as to the jails, houses of correction, and county homes are given in these reports and will be tabulated on other pages.

ALAMANCE—Dr. R. A. Freeman, Burlington. Typhoid fever to some extent in nearly all parts; one physician has died from it. Some catarrhal troubles from wet weather.

ALEXANDER—Dr. T. F. Stevenson, Taylorsville. Measles and whooping cough. Three cases of typhoid fever.

ALLEGHANY—Dr. Robt. Thompson, Sparta. Measles to some extent in the middle parts. One case of typhoid fever.

ANSON—Dr. E. S. Ashe, Anson. No report.

ASHE—Dr. L. C. Gentry, Crumpler. Seven cases of typhoid fever in the northern part. A few cases of influenza and some summer complaint among children.

BEAUFORT—Dr. Joshua Tayloe, Washington. Twelve cases of typhoid and one of hemorrhagic malarial fever.

BERTIE—Dr. H. V. Dunstan, Windsor. Mild bowel affections.

BLADEN—Dr. Newton Robinson, Elizabethtown. Some malarial fever in nearly all parts. Bowel troubles.

BRUNSWICK—Dr. D. I. Watson, Southport. One case of whooping cough. The home is badly in need of repairs, and it would be better to build

a new one near the county seat, but to this the Commissioners are opposed.

BUNCOMBE—Dr. E. C. Starnes, Asheville. A number of cases of measles and whooping cough, one of diphtheria and a few of typhoid fever.

BURKE—Dr. J. L. Laxton, Morganton. Four cases of whooping cough and eleven of typhoid fever. Diarrhœa and dysentery to a limited extent in nearly all parts. Three cases of hydrophobia in dogs reported; all killed. The town is being inspected for sanitary purposes and cleaned up.

CABARRUS—Dr. Robert S. Young, Concord. Twenty-one cases of typhoid fever. Malarial fevers and bowel troubles in all parts.

CALDWELL—Dr. A. A. Kent, Lenoir. Five cases of measles, fifty of whooping cough and eight of typhoid fever. Gastro-intestinal diseases throughout the county.

CAMDEN—No Board of Health.

CARTERET—Dr. George N. Ennett, Beaufort. Bowel troubles in all parts. I would recommend that separate quarters be fitted up in the jail for white and colored prisoners.

CASWELL—Dr. W. O. Spencer, Yanceyville. Very little sickness.

CATAWBA—Dr. D. McD. Yount, Newton. Measles in all parts. The public buildings are well kept now, and strict attention is given to cleanliness.

CHATHAM—No report.

CHEROKEE—Dr. J. F. Abernathy, Murphy. Diphtheria has abated and mumps and whooping cough have made their appearance.

CHOWAN — Dr. R. H. Winborne, Rockyhook. Five cases of typhoid fever. Diarrhœa, dysentery and cholera morbus. Cholera in hogs and chickens.

CLAY—Dr. W. E. Sanderson, Hayesville. Fifty cases of whooping cough and two of typhoid fever. Some diarrhœa and dysentery among children.

CLEVELAND—Dr. O. P. Gardner, Shelby. Five cases of typhoid fever in the northern part. Careful attention is paid to cleansing in the towns.

COLUMBUS—Dr. I. Jackson, Whiteville. Two cases of typhoid fever. Diarrhœa and mild malarial fever. An epidemic disease among chickens and some hog cholera, but not so much as formerly.

Craven—Dr. J. W. Duguid, Newbern. No report.

CUMBERLAND—Dr. J. Vance McGougan, Fayetteville. Four cases of measles and one of whooping cough. Typhoid fever in certain parts.

CURRITUCK—No Board of Health.

DARE—Dr. W. B. Fearing, Manteo. Malarial fever and dysentery in all parts.

DAVIDSON—Dr. John Thames, Lexington. Four cases of measles, three of whooping cough, nine of typhoid fever and one of hemorrhagic malarial fever. Malarial and bowel troubles in many parts.

DAVIE—Dr. James McGuire, Mocksville. A few cases of malarial fever.

DUPLIN—Dr. J. C. Grady, Magnolia. Typhoid and malarial fevers in all parts. Heavy rains have left a great deal of stagnating water.

DURHAM—Dr. John M. Manning, Durham. Measles, whooping cough and entero-colitis in all parts. Two cases of typhoid fever.

EDGECOMBE—Dr. Donald Williams, Tarboro. No diseases reported.

FORSYTH—Dr. E. F. Strickland, Bethania. Dysentery and typhoid fever in most parts.

FRANKLIN—Dr. E. S. Foster, Louisville. Whooping cough, dysentery, typhoid and malarial fevers in some parts.

GATES—No Board of Health.

GASTON—Dr. J. H. Jenkins, Dallas. Some typhoid fever. Malarial fever quite common along Big Long creek, and will so continue until better drainage is secured; the creek has a great deal of swamp lands along both sides of it. It has filled up and its channel will have to be cleaned out before the land can be drained. This will take a great deal of work.

GRAHAM—No Board of Health.

GRANVILLE—Dr. Wm. O. Baskerville, Oxford. One case of typhoid fever. Some dysentery and malarial fever.

GREENE—Dr. Joseph E. Grimsley, Snow Hill. Seven cases of scarlatina, twelve of typhoid fever and one of hemorrhagic malarial fever. Malarial fever in all parts.

GUILFORD—Dr. W. J. Richardson, Greensboro. No report.

HALIFAX—Dr. I. E. Green, Weldon. Some bowel troubles and a few cases of malarial fever.

HARNETT—No report.

HAYWOOD—Dr. J. Howell Way, Waynesville. Whooping cough and mild diarrhoea very prevalent. Two cases of typhoid fever.

HENDERSON—No Board of Health.

HERTFORD—Dr. John W. Tayloe, Union. Two cases of typhoid fever. Some hog cholera.

HYDE—No Board of Health.

IREDELL—Dr. W. J. Hill, Statesville. Eight cases of typhoid fever. Bowel troubles and mumps.

JACKSON—Dr. W. F. Tompkins, Webster. Measles (8), whooping cough (11) and typhoid fever (3). Diarrhoea and dysentery in nearly all parts.

JOHNSTON—Dr. R. J. Noble, Selma. No diseases reported.

JONES—No report.

LENOIR—Dr. James M. Parrott, Kinston. Thirteen cases of measles. Malarial fever in all parts. The jail needs sewerage and ventilation.

LINCOLN—Dr. Thos. F. Costner, Lincolnton. Two cases of typhoid fever. Dysentery in all parts.

MCDOWELL—Dr. Geo. I. White, Marion. Measles and dysentery in the central part.

MACON—Dr. S. H. Lyle, Franklin. Twenty cases of measles, thirty-five of whooping cough, two of diphtheria and eight of typhoid fever. Diarrhoea and dysentery in all parts. Distemper in horses. The county is building a good modern style jail.

MADISON—Dr. Jas. K. Hardwicke, Marshall. Fifty cases of whooping cough. The jail roof needs repairing badly.

MARTIN—Dr. W. H. Harrell, Williams-ton. One case of typhoid fever. Intestinal diseases in all parts.

MECKLENBURG—Dr. H. M. Wilder, Charlotte. One case of scarlatina and six of typhoid fever. Bilious fever in Charlotte. The sanitary condition of the city was never better, the crematory contributing much to that end.

MITCHELL—Dr. C. E. Smith, Bakersville. Measles (200) epidemic in all parts and of some severity. Twenty

cases of whooping cough and two of typhoid fever. Some dysentery, diarrhoea and cholera morbus.

MONTGOMERY—Dr. W. A. Simmons, Troy. Five cases of measles and two of typhoid fever. We have had some dysentery in the fore part of the month, and now there are a few cases of gastric catarrh that some doctors may call typhoid fever if they have not much practice at the time.

MOORE—Dr. Gilbert McLeod, Carthage. No report.

NASH—Dr. J. J. Mann, Nashville. Malarial and typhoid fevers in many parts.

NEW HANOVER—Dr. J. C. Shepard, Wilmington. One case of scarlatina, properly quarantined, and four of typhoid fever. Malarial and diarrhoeal diseases in all parts. A few cases of mumps.

NORTHAMPTON—Dr. H. W. Lewis, Jackson. Eight cases of typhoid fever and one of hemorrhagic malarial fever. Malarial diseases in all parts. An epidemic of chicken pox. The unprecedented rainfall in June has filled the ditches and there is poor drainage everywhere.

ONslow—Dr. E. L. Cox, Jacksonville. Four cases of whooping cough. Malarial troubles in all parts. The sanitary condition of the court house is not good.

ORANGE—Dr. D. C. Parris, Hillsboro. A few cases of measles and whooping cough. Bowel diseases in all parts. Some chicken cholera. The condition of the jail is as good as it can be made under the present arrangement of the building.

PAMLICO—No Board of Health.

PASQUOTANK—Dr. J. E. Wood, Elizabeth City. Nine cases of typhoid fever. Malarial fevers in some parts.

PENDER—Dr. Geo. F. Lucas, Currie. Malarial fevers in all parts. Drainage badly needed in many sections.

PERQUIMANS—Dr. J. W. Speight, Hertford. Seven cases of typhoid fever. Remittent fever.

PERSON—Dr. J. A. Wise, Roxboro. Measles and dysentery.

PITT—Dr. Frank W. Brown, Greenville. One case of scarlatina, a few of whooping cough and three of typhoid fever. Diarrhoea and dysentery.

POLK—Dr. C. J. Kenworthy, Tryon. No diseases reported.

RANDOLPH—Dr. T. T. Ferree, Ashboro. Three cases of typhoid fever. Some bronchitis.

RICHMOND—Dr. W. H. Steele, Rockingham. Mumps, malarial and typhoid fevers.

ROBESON—Dr. T. A. Norment, Jr., Lumberton. No diseases reported.

ROCKINGHAM—Dr. D. W. Courts, Reidsville. No diseases reported.

ROWAN—Dr. John Whitehead, Salisbury. Ten cases of measles, twenty of whooping cough and six of typhoid fever. Malarial fever.

RUTHERFORD—Dr. E. B. Harris, Rutherfordton. Many cases of whooping cough and some diarrhoea.

SAMPSON—Dr. Jno. A. Stevens, Clinton. Measles, whooping cough and chicken pox. Malarial and typhoid fevers and bowel diseases. More sickness than usual.

STANLY—Dr. D. P. Whitley, Millington. Diarrhoea and dysentery in all

parts. Some pneumonia and malarial fever.

STOKES—Dr. W. L. McCanless, Danbury. Two cases of typhoid fever. Dysentery in all parts.

SURRY—Dr. John R. Woltz, Dobson. Typhoid fever, (40 cases reported,) in nearly all parts. Efforts are being made to improve sanitary conditions in sections where fever prevails.

SWAIN—Dr. A. M. Bennett, Bryson City. Two cases of typhoid fever. Whooping cough in some parts. An epidemic of distemper in horses.

TRANSYLVANIA—Dr. M. M. King, Brevard. Two cases of typhoid fever. The condition of the jail and county home is as good as can be expected.

TYRRELL—Dr. B. W. Cohn, Columbia. No report.

UNION—Dr. J. E. Ashcraft, Monroe. Twenty-five cases of whooping cough and fifteen of typhoid fever. A great many cases of malarial fever.

VANCE—Dr. J. H. Tucker, Henderson. A few cases of measles, whooping cough and hemorrhagic malarial fever and thirty of typhoid fever. Diarrhœa, dysentery and remittent fever. Twenty-two of the typhoid cases are reported from the Townsville township. The reporter says: "All of my cases of typhoid fever present malarial complications as shown by the good effects of and the absolute necessity for quinine in good doses."

WAKE—Dr. P. E. Hines, Raleigh. Measles (21), whooping cough (7), diphtheria (3), and typhoid fever (20). Diarrhœa, dysentery and malarial fevers in all parts heard from. An epidemic of hog cholera about Holly Springs. Seven replies from thirty postal cards sent out.

WARREN—Dr. Geo. A. Foote, Warrenton. A few cases of typhoid fever. Bilious fever, diarrhœa and dysentery in many parts.

WASHINGTON—No Board of Health.

WATAUGA—Dr. W. B. Councill, Boone. Measles (10 cases), now subsiding.*

WAYNE—Dr. W. J. Jones, Jr., Goldsboro. Eight cases of typhoid fever. Malarial fever in all parts.

WILKES—Dr. J. M. Turner, Wilkesboro. Three cases of measles and eight of typhoid fever. Diarrhœa and dysentery in all parts. We need a well at the county home, and other improvements are badly needed.

WILSON—Dr. N. Anderson, Wilson. Slight malarial fevers in all parts. The County Commissioners have made a contract for water and a thorough system of sewerage for the jail.

YADKIN—Dr. T. R. Harding, Yadkinville. Typhoid fever in nearly all parts.

YANCEY—Dr. J. L. Ray, Burnsville. A few cases of typhoid fever in different parts. The jail is tolerably well kept. They have been using efforts to stop the typhoid fever around the jail.

Review of Diseases Reported for June, 1896.

BOWEL DISEASES*—From Ashe, Bertie, Bladen, Burke, Cabarrus, Caldwell, Carteret, Chowan, Clay, Columbus, Davidson, Halifax, Haywood, Iredell, Jackson, Macon, Martin, Mitchell, New Hanover, Orange, Pitt, Rutherford, Sampson, Stanly, Vance, Wake, Warren and Wilkes—28 counties.

BRONCHITIS—From Randolph.

CHOLERA MORBUS—From Chowan and Mitchell.

CHOLERA, IN CHICKENS—From Columbus and Orange.

CHOLERA, IN HOGS—From Columbus, Hertford and Wake.

DIPHTHERIA — From Buncombe, Macon and Wake.

DISTEMPER, IN HORSES—From Macon and Swain.

DYSENTERY—From Burke, Chowan, Clay, Dare, Franklin, Granville, Jackson, Lincoln, McDowell, Macon, Mitchell, Person, Pitt, Stanly, Stokes, Vance, Wake, Warren and Wilkes—19 counties.

HYDROPHOBIA—From Burke.

INFLUENZA—From Ashe.

MALARIAL FEVER—From Beaufort, Bladen, Cabarrus, Columbus, Dare, Davidson, Davie, Duplin, Franklin, Gaston, Granville, Greene, Halifax, Lenoir, Mecklenburg, Nash, New Hanover, Northampton, Onslow, Pasquotank, Pender, Perquimans, Rowan, Sampson, Stanly, Union, Vance, Wake, Warren, Wayne and Wilson—31 counties.

MALARIAL FEVER, HEMORRHAGIC—From Beaufort, Davidson, Greene, Northampton and Vance.

MEASLES — From Alleghany, Buncombe, Caldwell, Catawba, Cumberland, Davidson, Durham, Jackson, Lenoir, McDowell, Macon, Mitchell, Orange, Person, Rowan, Sampson, Vance, Wake, Watauga and Wilkes—20 counties.

MUMPS—From Cherokee and Iredell.

PNEUMONIA—From Stanly.

SCARLATINA — From Greene, Mecklenburg, New Hanover and Pitt.

TYPHOID FEVER—From Alamance, Alexander, Alleghany, Ashe, Beaufort,

Buncombe, Burke, Cabarrus, Caldwell, Chowan, Clay, Cleveland, Columbus, Cumberland, Davidson, Duplin, Durham, Forsyth, Franklin, Gaston, Granville, Greene, Haywood, Hertford, Iredell, Jackson, Lincoln, Macon, Martin, Mecklenburg, Mitchell, Nash, New Hanover, Northampton, Pasquotank, Perquimans, Pitt, Randolph, Rowan, Sampson, Stokes, Surry, Swain, Transylvania, Union, Vance, Wake, Warren, Wayne, Wilkes, Yadkin and Yancey—52 counties.

VARICELLA — From Northampton and Sampson.

WHOOPIING COUGH—From Alexander, Brunswick, Buncombe, Burke, Caldwell, Cherokee, Clay, Cumberland, Davidson, Durham, Franklin, Haywood, Jackson, Macon, Madison, Mitchell, Onslow, Orange, Pitt, Rowan, Ruth-erford, Sampson, Swan, Union, Vance and Wake—26 counties.

*Cholera infantum, cholera morbus and dysentery, when mentioned by reporters, are given separate headings.

Summary of Mortuary Reports for June, 1896. (Twenty-six towns.)

	White.	Col'd.	Total.
Aggregate population.....	80,972	59,163	140,135
Aggregate deaths.....	131	133	264
Representing annual death rate per 1000.....	19.2	27.0	22.6
<i>Causes of Death.</i>			
Typhoid Fever.....	5	10	15
Malarial Fever.....	7	6	13
Whooping Cough.....	11	2	13
Measles.....	6	0	6
Pneumonia	3	5	8
Consumption	13	20	33
Brain diseases	19	8	27
Heart diseases.....	4	8	12
Neurotic diseases.....	7	9	16
Diarrhoeal diseases.....	17	31	48
All other diseases.....	37	32	69
Accident	1	1	2
Suicide.....	1	0	1
Violence.....	0	1	1
	131	133	264
Deaths under 5 years.....	50	45	95
Still-born.....	9	17	26

Condition of Jails and County Homes by Counties for June, 1896.

COUNTIES.	JAIL.					HOME.				
	General Sanitary Condition.	Number Prisoners confined.	Space allotted each, (in cubic feet.)	Number giving evidence of successful vaccination.	Number who can read and write.	General Sanitary Condition.	Number inmates.	Space allotted each, (in cubic feet.)	Number giving evidence of successful vaccination.	Number who can read and write.
Alamance...	good	15 (a)	.....	.....	.....	good	32	.....	.....	.....
Alexander .	only fair	2	.....	.....	1	good	7	.....	.....	2
Alleghany...	good	0	.....	.....	.....	good	8	.....	.....	.....
Anson .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Ashe	fair	.....	.....	.....	.....	fair	10	700	.....	2
Beaufort	fair	4	.....	.....	.....	fair	11	.....	.....	.....
Bertie.	very good	10 (b)	.....	.....	6	very good	15	.....	3	3
Bladen	fair	0	.....	.....	.....	fair	6	.....	.....	.....
Brunswick .....	.....	1	*	0	0	†	13	700	0	0
Buncombe .	very good	107 (c)	711	18	67	very good	41	*	19	16
Burke	no change	8	.....	7	6	fair	14	.....	8	5
Cabarrus	good	26 (d)	*	8	5	good	26	990	8	10
Caldwell.....	.....	6	*	0	4	.....	4	*	2	2
Camden .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Carteret	fair †	0	.....	.....	.....	fair	0	.....	.....	.....
Caswell	no change	3	.....	.....	.....	no change	26	.....	.....	.....
Catawba	well kept	3	*	0	1	well kept	35	.....	14	10
Chatham .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Cherokee	fine	.....	.....	.....	.....	fine	.....	*	.....	.....
Chowan	fair	10	*	.....	.....	fair	5	*	.....	.....
Clay	good	0	.....	.....	.....	good	0	.....	.....	.....
Cleveland ....	.....	13	1,000	.....	6	.....	23	900	.....	4
Columbus ...	good	7	*	.....	2	good	13	*	.....	0
Craven .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Cumberland .....	.....	12	.....	.....	.....	.....	18	.....	.....	.....
Currituck .	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Dare	very bad	1	.....	.....	.....	.....	0	.....	.....	.....
Davidson	good	4	.....	.....	.....	good	24	.....	.....	3
Davie .....	.....	4	.....	1	2	.....	10	.....	2	0
Duplin	fair	1	600	.....	1	fair	15	480	2	3
Durham	good	32 (e)	*	.....	.....	good	20	*	.....	.....
Edgecombe ..	good	4	.....	.....	0	good	26	.....	.....	6
Forsyth	good	11	1,000	4	6	good	29	*	8	8

* Space exceeds 1,000 cubic feet. † See Summary of Reports from County Superintendents of Health. (a) Includes 12 in House of Correction. (b) Includes 5 in House of Correction. (c) Includes 80 in House of Correction. (d) Includes 15 in House of Correction. (e) Includes 21 in House of Correction.

Condition of Jails and County Homes by Counties.—CONTINUED.

COUNTIES.	JAIL.					HOME.				
	General Sanitary Condition.	Number Prisoners confined.	Space allotted each, (In cubic feet.)	Number giving evidence of successful vaccination.	Number who can read and write.	General Sanitary Condition.	Number inmates.	Space allotted each, (In cubic feet.)	Number giving evidence of successful vaccination.	Number who can read and write.
Franklin	very good	6	1,000	.....	.....	very good	28	420	.....	.....
Gaston	well kept	.....	.....	.....	.....	well kept	.....	.....	.....	.....
Gates .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Graham .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Granville	good	5	600	1	4	good	26	600	2	4
Greene	good	1	600	.....	.....	good	8	1,000	4	4
Gulford .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Halifax .....	.....	6	*	2	2	.....	39	.....	6	4
Harnett .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Haywood	excellent	11	.....	.....	.....	excellent	7	.....	.....	.....
Henderson .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Hertford	no change	1	*	0	0	no change	9	*	1	2
Hyde .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Iredell	no change	40 (a)	500	.....	.....	no change	.....	.....	.....	.....
Jackson .....	.....	11	.....	.....	5	.....	4	.....	1	1
Johnston .....	.....	6	1,000	.....	.....	.....	13	*	.....	.....
Jones .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Lenoir	+	5	.....	.....	.....	.....	.....	.....	.....	.....
Lincoln	good	2	*	0	2	good	22	600	13	6
McDowell .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Macon .....	+	.....	.....	.....	.....	.....	11	600	7	8
Madison	crowded	25	300	6	9	crowded	20	400	4	7
Martin	no change	5	1,000	0	2	no change	13	*	4	3
Mecklenburg ..	good	116 (b)	*	.....	.....	good	57	*	.....	.....
Mitchell	not good	6	.....	.....	.....	good	6	.....	.....	.....
Montgomery ..	very good	0	.....	.....	.....	very good	19	500	.....	.....
Moore .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Nash	very good	3	600	2	3	very good	27	1,000	7	8
New Hanover ..	good	43 (c)	400	7	37	good	30	*	28	6
Northampton ..	good	8	800	2	2	good	40	850	10	12
Onslow	fair	5	.....	.....	.....	fair	5	.....	.....	.....
Orange	+	3	500	1	3	good	17	1,000	12	11
Pamlico .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

* Space exceeds 1,000 cubic feet. + See Summary of Reports from County Superintendents of Health. (a) Includes 24 in House of Correction. (b) Includes 92 in House of Correction. (c) Includes 21 in House of Correction.

Condition of Jails and County Homes by Counties.—CONTINUED.

COUNTIES.	JAIL.					HOME.				
	General Sanitary Condition.	Number Prisoners confined.	Space allotted each. (In cubic feet.)	Number giving evidence of successful vaccination.	Number who can read and write.	General Sanitary Condition.	Number inmates.	Space allotted each. (In cubic feet.)	Number giving evidence of successful vaccination.	Number who can read and write.
Pasquotank.....	fair	1	*	0	.....	fair	29	*	0	.....
Pender.....	fair	1	.....	0	0	fair	5	.....	0	0
Perquimans.....	.....	1	.....	.....	.....	.....	6	.....	.....	.....
Person.....	.....	6	.....	.....	1	.....	10	.....	.....	2
Pitt.....	.....	12	*	.....	.....	.....	21	*	.....	.....
Polk.....	good	4	*	0	3	.....	.....	.....	.....	.....
Randolph.....	no change	16	.....	.....	8	no change	32	.....	.....	6
Richmond.....	fair	20	760	0	14	fair	20	*	0	8
Robeson.....	good	10	.....	.....	.....	good	13	.....	.....	.....
Rockingham..	good	.....	.....	.....	.....	good	.....	.....	.....	.....
Rowan.....	.....	5	500	3	2	.....	18	500	9	7
Rutherford.....	.....	3	.....	.....	.....	.....	20	.....	.....	.....
Sampson.....	good	0	.....	.....	.....	good	18	.....	.....	.....
Stanly.....	good	5	*	0	2	good	8	*	0	2
Stokes.....	good	7	500	2	3	good	12	600	4	4
Surry.....	crowded	8	280	.....	.....	good	18	*	.....	.....
Swain.....	crowded	9	.....	0	9	good	3	700	1	0
Transylvania..	†	6	*	0	0	†	5	*	0	0
Tyrrell.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Union.....	good	16	.....	.....	.....	good	25	.....	.....	.....
Vance.....	good	5	*	2	2	excellent	13	*	2	2
Wake.....	good	76 (a)	.....	.....	.....	good	70	.....	.....	.....
Warren.....	good	4	.....	0	2	good	25*	.....	4	4
Washington.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Watanga.....	good	5	.....	5	3	good	7	.....	.....	.....
Wayne.....	good	7	.....	.....	2	good	13	.....	.....	1
Wilkes.....	.....	4	.....	.....	.....	†	11	.....	.....	.....
Wilson.....	good †	3	.....	1	2	good	27	.....	3	3
Yadkin.....	fair	5	.....	.....	2	good	18	.....	.....	7
Yancey.....	fair	1	*	0	0	no change	2	*	.....	.....

* Space exceeds 1,000 cubic feet. † See Summary of Reports from County Superintendents of Health. (a) Includes 64 in House of Correction.

Mortuary Report for June, 1896.

TOWNS AND REPORTERS.	RACES.	POPULATION.		TEMPORARY ANNUAL DEATH RATE PER 1,000.		Typhoid Fever.	Scarlet Fever.	Malarial Fever.	Diphtheria.	Whooping Cough.	Measles.	Pneumonia.	Consumption.	Brain Diseases.	Heart Diseases.	Neurotic Diseases.	Diarrhoeal Diseases.	All Other Diseases.	Accident. Suicide.	Violence.	TOTAL DEATHS.		
		By Races.	Total.	By Races.	Total.																By Races.	By Towns.	Deaths under 5 years. Still Born.
Asheville.....	White.	8,000		27.0																			
Dr. E. C. Starnes	Colored.	4,000	12,000	21.0	25.0					5		1	4	2	1	1	3	1			18	35	12
CHARLOTTE	White.	10,855		17.7		1								5	3	3	4			16	32	14	
C. A. Spratt, H. off'r	Colored.	8,796	19,651	21.8	19.5	4							1	1	3	3	4			16	32	16	
Durham.....	White.	4,000	6,000	48.0	38.0					4	5	1	1	3						16	19	14	
Dr. J. M. Manning.	Colored.	2,000		18.0		1								1						3			
FAYETTEVILLE	White.	3,500		24.0		1		2	1	1	1									7	14	1	
Dr. J. V. McGougan.	Colored.	2,500	6,000	33.6	28.0								2	1	1	1	2			7	14	1	
GOLDSBORO	White.	3,700		13.0				2															
T. H. Bain, Sec. B. H.	Colored.	1,700	5,400	28.2	17.8								1				2				4	8	1
HENDERSON	White.	2,250		5.3										1									
Dr. W. J. Judd.	Colored.	2,000	4,250	30.6	16.9																1	6	4
HILLSBORO	White.	400		60.0									1								5	3	1
Dr. D. C. Parris.	Colored.	300	700	40.0	51.4									1							2	3	1
JACKSONVILLE	White.	150		80.0										1							1		
Dr. E. L. Cox.	Colored.	100	250	0.0	48.0																0		
LENOIR	White.	800		15.0											1						1	2	
Dr. A. A. Kent.	Colored.	300	1,100	40.0	21.8										1						1		
MONROE	White.	1,800		13.3											1						2	3	
Dr. J. M. Blair.	Colored.	600	2,400	20.0	15.0			1															
OXFORD	White.	1,200		40.0					1						1						4	8	1
Dr. W. O. Baskerville.	Colored.	1,200	2,400	40.0	40.0	1											1	2			1		
RALEIGH	White.	7,200		10.0									2	1	2	1	2				6	23	1
T. P. Sale, Clerk B. H.	Colored.	6,000	13,200	34.0	20.1	1							3	1	2	1	2				17	...	3
ROCKINGHAM	White.	1,300		9.2																	1	2	
Dr. W. H. Steele	Colored.	450	1,750	26.7	13.7										1						1		
ROCKY MOUNT	White.	1,600		0.0																	0		
Dr. G. L. Wimberley.	Colored.	800	2,400	0.0	0.0																0	0	
SALEM	White.	3,942		15.2										1							5	7	2
C. S. Hauser H. Officer	Colored.	342	4,284	70.2	19.6										1						2		1
SALISBURY	White.	3,500		17.1									1		1		2	2			5	15	1
Dr. John Whitehead.	Colored.	1,500	5,000	80.0	36.0					2			2	1	1	2	2				10		
SCOTLAND NECK	White.	775		30.9					1												2	4	1
Mayor J. A. Perry.	Colored.	425	1,200	56.2	40.0										2						2		
Southport.....	White.	800		15.0																	1		
W. H. Pyke, City Cl'k.	Colored.	400	1,200	0.0	10.0																0		
Statesville.....	White.	2,500		33.6																	7		
Dr. W. J. Hill.	Colored.	1,000	3,500	0.0	24.0																0		
Tarboro.....	White.	1,300		18.5													2				2	3	
Dr. L. L. Staton.	Colored.	1,200	2,500	10.0	14.4							1									1		
WARRENTON	White.	1,000		24.0									1	1							2		1
Dr. G. A. Foote.	Colored.	500	1,500	0.0	16.0																		
WASHINGTON	White.	3,000		12.0									1	1							3	9	1
Dr. Joshua Tayloe.	Colored.	2,500	5,500	28.8	19.6	1						1				1	2	1		1	6		1
WELDON	White.	700		0.0																	0	1	
Mayor J. T. Gooch.	Colored.	750	1,450	16.0	8.3																		
WILMINGTON	White.	9,000		14.7				1					2	2			2	4			11	41	3
Dr. J. C. Shepard.	Colored.	13,000	22,000	27.7	22.4	1		5					4	1	1		2	10	1		30	12	8
Wilson.....	White.	2,500		9.6						1							1				2	4	1
Dr. N. Anderson.	Colored.	2,000	4,500	12.0	10.7											1	1				2		
WINSTON	White.	5,200		27.7		3							1	1			3	4			12	24	6
Dr. John Bynum.	Colored.	4,800	10,000	30.0	28.8							1	3	1			3	4			12	5	1

*Visitor of a few days.

METEOROLOGICAL SUMMARY FOR NORTH CAROLINA, JUNE, 1896.

Furnished by the North Carolina Agricultural Experiment Station and Climate and Crop Service.

H. B. BATTLE, PH. D., DIRECTOR.

C. F. VON HERRMANN, METEOROLOGIST.

STATIONS.	TEMPERATURE, (DEGREES FAHR.)									NO. OF DAYS.					
	Monthly Mean.	Highest.	Date.	Mean Maximum.	Lowest	Date.	Mean Minimum.	Monthly Range.	Mean Daily Range.	Total Precipitation. (in inches)	Clear.	Partly Cloudy.	Cloudy.	Rainy.	Prevailing Wind.
Asheville.....	68.6	87	27	79.9	47	15	57.4	41	22.5	4.44	17	9	4	11	N
Beaufort.....	76.1	87	27	81.1	65	14	71.1	22	10.0	2.69	10	6	14	14	N W
Charlotte.....	74.2	96	26	83.4	55	14	65.1	41	18.3	3.35	7	17	6	9	N E
Chapel Hill.....	75.8	97	26	86.9	56	12	64.8	41	22.1	5.06	18	7	5	11	N W
Horse Cove.....	68.7	85	23	79.1	45	14	58.4	40	20.6	5.90	8	13	9	13	N W
Henderson.....	74.5	94	23	84.2	59	14	64.8	35	19.4	5.64	14	9	7	12	S
Littleton.....	74.6	92	23	81.6	55	12	64.5	37	20.1	3.60	9	8	13	9	S W
Louisburg.....	74.5	91	23	83.6	55	12	65.4	36	18.2	4.72	.....	.....	.....	13	.....
Lenoir.....	71.1	87	26	77.9	56	14	67.2	31	10.7	2.70	12	12	6	9	W
Monroe.....	74.0	92	28	83.3	54	14	64.6	38	18.7	7.38	18	5	7	9	S W
Morganton.....	72.2	89	25	79.7	61	15	68.6	28	11.1	4.13	.....	.....	.....	9	.....
Mt. Airy.....	70.8	90	26	80.9	49	12	60.8	41	20.1	6.85	2	20	8	14	N W
Mt. Pleasant.....	73.8	90	25	82.6	54	14	64.9	36	17.7	4.33	6	8	16	16	S W
Moncure.....	74.2	93	28	84.3	54	12	64.2	29	20.1	5.13	12	15	3	13	N W
Oak Ridge.....	72.8	91	28	84.0	50	11	61.6	41	22.4	10.08	11	14	5	14	W
Pittsboro.....	73.2	89	27	80.6	58	14	65.8	31	14.8	7.11	12	13	5	10	N E
Raleigh.....	74.6	92	25	83.4	58	14	65.9	34	17.5	3.41	5	12	13	13	S W
Roxboro.....	72.2	92	28	83.0	53	13	61.5	39	21.5	4.28	9	6	15	8	.....
Rockingham.....	76.8	96	29	86.8	57	14	66.8	39	20.0	6.24	14	10	6	12	W
Southport.....	76.8	88	26	83.3	60	14	70.0	28	13.3	7.02	1	17	12	12	S W
Salisbury.....	74.2	95	23	84.9	53	15	63.5	42	21.4	3.91	.....	.....	.....	10	S W
Selma.....	75.2	94	23	85.3	52	16	65.0	42	20.3	2.52	.....	.....	.....	11	.....
Saxon.....	73.9	95	26	84.8	50	12	63.0	45	21.8	6.81	4	19	7	12	N W
Tarboro.....	75.7	93	29	87.0	54	14	64.4	39	22.6	5.16	12	14	4	11	E
Weldon.....	75.0	92	22	83.7	56	12	66.4	37	17.3	6.71	10	11	9	9	S
Wilmington.....	76.0	91	25	82.7	61	14	69.4	30	13.3	5.37	2	19	9	18	N W

Summary for June, 1896.

Mean barometer 30.02 inches; normal for June 30.02. Highest barometer 30.24 on the 15th at Hatteras. Lowest barometer 29.63 on the 10th at Kitty Hawk. Mean temperature 73.1 degrees; normal for June 74.3. Highest temperature 97 on the 26th at Chapel Hill. Lowest temperature 39 on the 15th at Linville. Average rainfall 5.36 inches; normal for June 4.43 inches. Greatest monthly rainfall 10.18 inches at Willetton; least monthly rainfall 2.34 inches at Hatteras. Average number of clear days 10; partly cloudy 12; cloudy 8; rainy 12. Prevailing wind direction Southwest. Average velocity 6.9 miles per hour. Normal direction for June Southwest; normal velocity 7.0 miles per hour.

BULLETIN

OF THE

NORTH CAROLINA BOARD OF HEALTH.

Published Monthly at the Office of the Secretary of the Board, at Raleigh, N. C.

GEO. G. THOMAS, M. D., *Pres.*.....Wilmington.
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 J. C. CHASE, CIV. ENG.,.....Wilmington.

RICHARD H. LEWIS, M. D., *Secretary and Treasurer*, Raleigh.

VOL. XI.

AUGUST, 1896.

No. 5.

Does Pure Water Pay?

The value of pure water cannot be expressed with absolute definiteness in dollars and cents, first, because we cannot say just how many lives and how much sickness it saves; and, second, because if these facts were known their value could not be told in money terms alone. But, while this is true, some figures can readily be presented by the engineer and sanitarian, which may have good effect when water supply or sewage disposal problems are under discussion.

A good instance of what can be done in this line is presented by the following extract from a new book on "Water Supply," by Prof. Wm. B. Mason, of Rensselaer Polytechnic Institute, Troy, N. Y. Professor Mason has made special studies of the relation between water supply and disease, both in this country and abroad. He writes under the caption, "Does Pure Water Pay?" as follows:

"To abandon an existing water sup-

ply system, or to purify the polluted water that it furnishes, always involves the outlay of much money, and the city taxpayer has the right to inquire whether or not the benefit derived is a fair equivalent for the cash expended. Impure water affects the yearly death rate, as a whole, much less than that section of it which deals with diseases recognized as 'water-borne,' prominent among which is typhoid fever. No better measure can be selected of the wholesomeness of a city supply than that furnished by a list of the annual cases of this serious disease.

"Typhoid fever is doubtless, to a very large extent, a preventable disease, but the means of prevention, in the shape of great public works, are expensive, and again the question is asked, Do these works pay? Can we afford to save the typhoid victims?

"According to Roehard:

"The economic value of an individual is what he has cost his family, the community or the State for his

living, development and education. It is the loan which the individual has made from the social capital in order to reach the age when he can restore it by his labor.

"The statement of this value in the form of money is a difficult matter which has been variously settled by sundry investigators. Chadwick considers an English laborer equivalent to a permanent deposit of about \$980. Farr gives about \$780 as the average value of each human life in England. A French soldier is rated as worth about \$1,200."

"In view of the fact that typhoid fever selects by far the greatest number of its victims from among those in the very prime of life, to the relative exclusion of the very young and the very old, it will be reasonable to follow the figure fixed upon by E. F. Smith and place the loss caused the community by a death from typhoid at \$2,000. This will be noticed to be less than half the figure so frequently referred to in the courts of this State, for the value of a human life.

"For the sake of illustration, let us consider the tax levied annually by typhoid fever upon a city of one hundred thousand inhabitants, for instance, Albany, N. Y. From statistics given in the five last annual reports of the State Board of Health, the deaths due to typhoid fever in Albany average 75 for the year. Rating the money value of each life at the figure given above, this death rate would mean an annual pecuniary loss to the city of \$150,000. Funeral expenses are variously estimated at from \$20 to \$30.

Should we accept the intermediate value of \$25, this item would cause \$1,875 to be added to the above sum, thus raising the total direct loss through death to \$151,875.

"But typhoid fever does not always kill, its mortality rate is commonly quoted at about 10 per cent. For the present purpose, should we assume nine recoveries for each death from the disease, and place 43 days as the period of convalescence, (the average of 500 cases at the Pennsylvania Hospital,) we should have a term of 29,025 days as representing the time lost, per year, by the 675 persons who have the fever and recover. Thus an annual loss of over 79 years has to be borne by the city's capital of productive labor. This great amount of enforced idleness, when translated into money value, should very properly be added to the death loss above estimated.

"Fixing the rate of wages at \$1 per individual per day, a very low figure, considering that the bulk of typhoid patients are in the very prime of life, there is a loss of \$43 for wages for each recovery, or a total yearly loss for the city from this item of \$29,025. The cost of nursing and doctors' bills equals at least \$25 per case, which is a very low estimate, thus adding the further amount of \$16,875 to the gross sum. Expressed in tabular form, this yearly tax imposed by typhoid fever upon the city of Albany is given below, and, upon a most conservative estimate, it is practically \$200,000, which is \$2 a year for each man, woman and child in the city, or a yearly tax of \$10 for every family of 5 persons.

75 deaths at \$2,000 each.....	\$ 150,000
75 funerals at \$25 each.....	1,875
Wages of 675 convalescents, during 43 days, at \$1 per day.....	29,025
Nursing and doctors' bills for 675 convalescents, at \$25 each case.....	16,875
Total tax levied annually by typhoid fever upon the city of Albany.....	\$ 197,775

"It can readily be seen that public works which could eliminate a reasonable fraction of this great tax would pay for themselves in the course of a few years, even though they were originally expensive.

"Finally, it is right to inquire what fraction of the present typhoid loss it would be reasonable to hope to save if pure water should be served in the city in place of its present polluted supply. To answer this question, recourse must be had to statistics obtained from other cities, covering periods before and after better water systems had been introduced. Such data have been already given for a number of cities and communities, and it only remains to anticipate what will be later said of Munich, and state that improved water and sewerage have reduced the annual typhoid mortality from an average of 25.4 per 100,000 to 2.7.

"Surely pure water pays in a city with such a record, and likewise it would pay in the newer but growing cities on this side of the Atlantic. Americans insist upon being supplied with much more water per capita than is usually furnished for Europe, but they are singularly indifferent as to its quality. It would be a reform of great moment if they could be induced to

curtail the present enormous waste of public water, such as that of Buffalo, for instance, which is stated to be 70 per cent. of the entire pumpage, and to spend the money thus permitted to leak away in a vigorous effort to improve the quality of the water. No such lowering of the typhoid death rate as occurred in Munich, San Remo, and sundry other places, could be looked for, perhaps, but a large percentage of the present rate could be cut off, and, we think, from a consideration of the above figures, that such a reduction would pay.

"No weight should be attached to the argument, so often advanced by the individual householder, that he and his family have used the water without evil results for the past fifty years. A single family is too small a collection of units upon which to base any estimate touching the question at issue. Placing the typhoid death rate for Albany, as above, at 75 annually, it would call for one death in a family of five persons every 261 years, a period much beyond the limit of ordinary family record."—*Engineering News quoted in July Sanitarian.*

The Pasteur Monument.

We have just received a letter from Surgeon, General Wyman, M. H. S. of the Pasteur Monument Committee of the United States, asking us to act as an associate member of the Committee and collect and forward subscriptions. We feel that nothing we could say would add to the force of the "Announcement" sent out by the committee which we take pleasure in appending, and we sincerely hope that a large number of our readers will evince sufficient interest in this most praise-

worthy undertaking to send us a subscription of at least \$1 each.

ANNOUNCEMENT.

It has been decided to erect in one of the squares of Paris a monument to the memory of M. Pasteur. Statues or busts will also no doubt be located at his birthplace and in other cities. The Paris committee has, however, wisely determined that the statue obtained through international effort shall be located at Paris, where it will be seen by the greatest number of his countrymen, and also by the greatest number of his admirers from other lands. The Paris committee has for honorary members the President of the Republic and his cabinet, together with about one hundred and sixty of the most prominent officials, scientists and other distinguished citizens of France. The active members of the committee are J. Bertrand, *President*, member of the French Academy, Perpetual Secretary of the Academy of Sciences. J. Simon, *Vice-President*, member of the French Academy, Perpetual Secretary of the Academy of Moral and Political Science. Grancher, *Secretary*, member of the Academy of Medicine, Professor in the Faculty of Medicine. Bruardel, member of the Academy and of the Academy of Medicine, Dean of the Faculty of Medicine. A Christophle, Honorary Governor of the Credit Foncier, Deputy from l'Orne. Count Delaborde, Perpetual Secretary of the Academy of Fine Arts. Duclaux, member of the Academy of Science and of the Academy of Medicine. Magnin, Governor of the Bank of France, Vice-President of the Senate. Baron A. de Rothschild, banker. Roux, Assistant Director of the Pasteur Institute. Wallon, Perpetual Secretary of

the Academy of Inscriptions and Belles Lettres.

The Paris committee has kindly extended the opportunity to the people of the United States to assist in this tribute of appreciation and love, and have authorized the organization of the Pasteur Monument Committee of the United States.

The members of this committee gladly accept the privilege of organizing the subscription, and of receiving and transmitting the funds which are raised.

We believe it is unnecessary to urge any one to subscribe. The contributions of Pasteur to science and to the cause of humanity were so extraordinary, and are so well known and so thoroughly appreciated in America, that our people only need the opportunity in order to demonstrate their deep interest.

All can unite in honoring Pasteur. He was such an enthusiastic investigator, so simple, so modest, so lovable, and yet so earnest, so great, so successful—his ideals were so high and his efforts to ameliorate the condition of humanity were so untiring—that we anticipate an enthusiastic response from the whole civilized world. The United States will vie with the foremost of nations in this tribute. Chemists, zoologists, physicians and all others interested in science will wish to be represented. No one is expected to subscribe an amount so large that it will detract in the least from the pleasure of giving. A large number of small subscriptions, freely contributed and showing the popular appreciation of this eminent Frenchman, is what we most desire.

This committee supplies subscription blanks, which should be returned in

the accompanying envelope, together with a money order, check or draft covering the amount subscribed. All checks, etc., should be made payable to "Treasurer Pasteur Monument Committee," and when received by the secretary a numbered receipt will be forwarded to the sender. The original subscription papers will be forwarded to the Paris committee for preservation.

It is our purpose to do our work as largely as possible through societies or other organizations. We prefer to have each organization appoint one of its members as an associate member of this committee, with authorization to collect and forward the subscriptions. The amounts thus far subscribed by individuals vary from fifty (50) cents to ten (10) dollars. It is hoped that no one who is interested will hesitate to place his name upon the list because he cannot give the maximum amount.

Please let this receive your early attention, and in that way assist our committee, which must conduct correspondence with the societies of the entire country.

Summary of Reports from County Superintendents of Health, for July, 1896, eighty counties reporting.

In the blanks on which these reports are made the following items are called for:

1. The number of cases of small-pox, measles, whooping cough, scarlatina, diphtheria, typhoid fever, pernicious malarial fever, hemorrhagic malarial fever, yellow fever and cholera which have occurred in the county during the past month.

2. The diseases which have been prevalent in the county, and in what parts.

3. Epidemics among domestic animals.

4. Remarks as to special unsanitary conditions in the county.

In few counties do physicians generally report these details to the Superintendent, though furnished with blanks for that purpose, and in most cases he has to depend upon himself alone in making his report.

Details as to the jails, houses of correction, and county homes are also given in these reports and will be found tabulated on other pages.

ALAMANCE—Dr. R. A. Freeman, Burlington. Typhoid fever in some parts and malarial fever in nearly all.

ALEXANDER—Dr. T. F. Stevenson, Taylorsville. Five cases of whooping cough and two of typhoid fever.

ALLEGHANY—Dr. Robt. Thompson, Sparta. No diseases to report.

ANSON—Dr. E. S. Ashe, Wadesboro. No report.

ASHE—Dr. L. C. Gentry, Crumpler. Typhoid fever epidemic in the northern part, though subsiding to some extent with the use of disinfection.

BEAUFORT—Dr. Joshua Tayloe, Washington. Five cases of typhoid fever.

BERTIE—Dr. H. V. Dunstan, Windsor. Malarial diseases in all sections. An epidemic of hog cholera.

BLADEN—Dr. Newton Robinson, Elizabethtown. Malarial fever in the swampy portions, owing to dry, hot weather.

BRUNSWICK—Dr. D. I. Watson, Southport. Whooping cough in many parts.

BUXCOMBE—Dr. E. C. Starnes, Asheville. A few cases of whooping cough and typhoid fever. Hog cholera,

BURKE—Dr. J. L. Laxton, Morganton. Four cases of typhoid fever. Diarrhœa.

CABARRUS—Dr. Robert S. Young, Concord. Twenty-two cases of typhoid fever.

CALDWELL—Dr. A. A. Kent, Lenoir. Six cases of measles and ten of typhoid fever. Whooping cough (75) in all parts. Mumps.

CAMDEN—No Board of Health.

CARTERET—Dr. George N. Ennett, Beaufort. One case of typhoid fever. Malarial fever.

CASWELL—Dr. W. O. Spencer, Yanceyville. Some malarial and continued fever and a few cases of mild typhoid.

CATAWBA—Dr. D. McD. Yount, Newton. A very few cases of measles and nine of typhoid fever. Malarial fever. The county home buildings are mainly double cottages arranged around and opening into a square. The jail is large and well kept.

CHATHAM—No report.

CHEROKEE—Dr. J. F. Abernathy, Murphy. An epidemic of whooping cough (105) and mumps, complicated in some cases with bronchitis and meningitis, with several deaths. The jail and home are in fine sanitary condition, notwithstanding the fact that one of the inmates in jail has typhoid fever.

CHOWAN — Dr. R. H. Winborne, Rockyhock. Diarrhœa and dysentery. Typhoid fever has prevailed generally. The rain fall has been in excess since the 18th of May—consequently much surface water has been used from shallow wells. How far that has been a factor in the causation of the great number of cases I am unable to say.

Cholera in hogs. More stringent legislation is needed to prevent its ravages.

CLAY—Dr. W. E. Sanderson, Hayesville. Forty cases of whooping cough and five of typhoid fever. Three cases of milk sickness near Hayesville during the rainy season.

CLEVELAND—Dr. O. P. Gardner, Shelby. Five cases of whooping cough.

COLUMBUS—Dr. I. Jackson, Whiteville. Several cases of measles and eight of typhoid fever. Hog cholera. Our people are turning their attention to putting down driven wells.

CRAVEN—Dr. J. W. Duguid, Newbern. Two cases of diphtheria, five of typhoid fever and one of hemorrhagic malarial fever. Diarrhœa and malarial fever in all parts. Cholera in chickens. City water and sewerage have been added to the jail.

CUMBERLAND—Dr. J. Vance McGowan, Fayetteville. Typhoid fever.

CURRITUCK—No Board of Health.

DARE—Dr. W. B. Fearing, Manteo. Six cases of typhoid fever. Malarial fevers in all parts, in some cases of grave form. We are making special efforts to have families attend to the sanitation of their homes, and try to impress upon them the importance of proper drinking water.

DAVIDSON—Dr. John Thames, Lexington. Eight cases of whooping cough and six of Typhoid fever. Malarial fever and bowel troubles.

DAVIE—Dr. James McGuire, Mocksville. Malarial fever, measles and gastric troubles. We have had a form of malarial fever with gastric symptoms and of a continued type, but not true typhoid. The jail is kept in as good condition as the construction of the building will allow.

DUPLIN—Dr. J. C. Grady, Magnolia. Measles (10), whooping cough (15), typhoid (20) and malarial fevers in all parts. Our towns need better drainage. An epidemic of hog cholera.

DURHAM—Dr. John M. Manning, Durham. Typhoid and typho-malarial fevers in some parts.

EDGECOMBE—Dr. Donald Williams, Tarboro. One case of scarlet fever reported from near Whitakers. Mild catarrhal troubles and a mild form of typhoid fever in many parts.

FORSYTH—Dr. E. F. Strickland, Bethania. Malarial and typhoid fevers (5 cases reported) in most parts.

FRANKLIN—Dr. E. S. Foster, Louisburg. A number of cases of Typhoid fever. The sanitary condition of the jail cannot be good, constructed as it is. I am taking steps to get some changes that I think will be beneficial.

GASTON—Dr. J. H. Jenkins, Dallas. Typhoid and malarial fevers in all parts. The recent freshets overflowed the lowlands and covered a great deal of corn and destroyed it. This corn is decomposing and causing chills and fever.

GATES—No Board of Health.

GRAHAM—No Board of Health.

GRANVILLE—Dr. T. S. Booth, of Oxford, has been elected Superintendent of Health in place of Dr. W. O. Baskerville, who has resigned and removed to Petersburg, Va.

GREENE—Dr. Joseph E. Grimsley, Snow Hill. Four cases of whooping cough, six of scarlatina, thirty of typhoid fever and three of pernicious malarial fever. Malarial fever in all parts.

GUILFORD—Dr. W. J. Richardson, Greensboro. Four cases of whooping

cough and ten of typhoid fever. Malarial fevers.

HALIFAX—Dr. I. E. Green, Weldon. Some whooping cough and two cases of typhoid fever. Malarial fever.

HARNETT—No report.

HAYWOOD—Dr. J. Howell Way, Waynesville. Forty cases of whooping cough, two of diphtheria and three of typhoid fever. Diarrhoea quite prevalent.

HENDERSON—No Board of Health.

HERTFORD—Dr. John W. Tayloe, Union. Twenty-eight cases of typhoid and one of pernicious malarial fever.

HYDE—No Board of Health.

IREDELL—Dr. W. J. Hill, Statesville, Mumps, bowel and lung troubles. Fevers.

JACKSON—Dr. W. F. Tompkins, Webster. Three cases of measles, eleven of whooping cough and four of typhoid fever. Diarrhoea.

JOHNSTON—Dr. R. J. Noble, Selma. One case of typhoid fever.

JONES—No report.

LENOIR—Dr. James M. Parrott, Kinston. Three cases of typhoid fever. Malaria and diarrhoea.

LINCOLN—Dr. Thos. F. Costner, Lincoln. Four cases of typhoid fever. Malarial fever in all parts. The recent floods have rendered the sanitary condition very bad in communities adjacent to South Fork river and Clark's creek. The county home should have new buildings nearer the county seat.

MCDOWELL—Dr. Geo. I. White, Marion. Some typhoid fever, dysentery and measles.

MACON—Dr. S. H. Lyle, Franklin. Twenty cases of whooping cough and

eighteen of typhoid fever. Diarrhœa mainly among infants. The new jail will be finished in a few days.

MADISON—Dr. Jas. K. Hardwicke, Marshall. No report.

MARTIN—Dr. W. H. Harrell, Martin. Three cases of typhoid fever.

MECKLENBURG—Dr. H. M. Wilder, Charlotte. Two cases of scarlatina, one of diphtheria, five of typhoid fever and one of pernicious malarial fever (imported). Chills and remittent fever in several parts.

MITCHELL—Dr. C. E. Smith, Bakersville. Twenty-five cases of measles, two of whooping cough and one of typhoid fever. Summer diarrhœa in all parts.

MONTGOMERY—Dr. W. A. Simmons, Troy. One case of typhoid fever. Common continued fever. Sporadic cases of hog cholera.

MOORE—Dr. Gilbert McLeod, Carthage. No report.

NASH—Dr. J. J. Mann, Nashville. Typhoid and malarial fevers and whooping cough.

NEW HANOVER—Dr. J. C. Shepard, Wilmington. Eight cases of whooping cough and nine of typhoid fever. Diarrhœal diseases and malarial fevers in all parts.

NORTHAMPTON—Dr. H. W. Lewis, Jackson. Two cases of scarlatina, one of diphtheria and three of hemorrhagic malarial fever. Malarial and typhoid (35) fevers in all sections. Chicken cholera. County in an extremely unsanitary condition.

ONSLOW—Dr. E. L. Cox, Jacksonville. A great deal of malarial fever in all parts, caused by the unusual amount of rain overflowing the swamps and lowlands.

ORANGE—Dr. D. C. Parris, Hillsboro. Two cases of whooping cough. Bowel diseases in all parts. The long-continued wet weather and the now-prevailing hot weather have developed a considerable amount of malarial disease of a virulent type.

PAMLICO—No Board of Health.

PASQUOTANK—Dr. J. E. Wood, Elizabeth City. Ten cases of typhoid fever. Catarrhal fevers in all parts.

PENDER—Dr. Geo. F. Lucas, Currie. One case of scarlatina, one of typhoid fever and one of hemorrhagic malarial fever. Malarial fevers in all parts.

PERQUIMANS—Dr. J. W. Speight, Hertford. Eleven cases of typhoid fever and one of pernicious malarial fever. Intermittent and remittent fevers.

PERSON—Dr. J. A. Wise, Roxboro. Malarial fever in all parts.

PITT—Dr. Frank W. Brown, Greenville. Whooping cough. Four cases of typhoid fever. Malarial and bowel diseases in most parts.

POLK—Dr. C. J. Kenworthy, Tryon. Three cases of whooping cough.

RANDOLPH—Dr. T. T. Ferree, Ashboro. Fifteen cases of typhoid fever. Malarial fever.

RICHMOND—Dr. W. H. Steele, Rockingham. Typhoid fever in many parts.

ROBESON—Dr. T. A. Norment, Jr., Lumberton. Many cases of malarial fever.

ROCKINGHAM—Dr. D. W. Courts, Reidsville. Two cases of whooping cough and six of typhoid fever.

ROWAN—Dr. John Whitehead, Salisbury. No report.

RUTHERFORD—Dr. E. B. Harris,

Rutherfordton. A few cases of whooping cough and typhoid fever. The county home buildings are bad and should be rebuilt. The place is kept clean and in as good condition as possible.

SAMPSON—Dr. Jno. A. Stevens, Clinton. Measles, influenza, typhoid and malarial fevers, diarrhoea and dysentery.

STANLY—Dr. D. P. Whitley, Millington. Five cases of Typhoid fever. Considerable malarial fever, diarrhoea and catarrhal troubles.

STOKES—Dr. W. L. McCanless, Danbury. Two cases of typhoid fever.

SURRY—Dr. John R. Woltz, Dobson. Three cases of diphtheria and forty of typhoid fever. The public buildings are scoured and limed every month.

SWAIN—Dr. A. M. Bennett, Bryson City. Typhoid fever in all parts (ten cases reported).

TRANSYLVANIA—Dr. M. M. King, Brevard. One case of typhoid fever.

TYRRELL—Dr. B. W. Cohn, Columbia. No report.

UNION—Dr. J. E. Ashcraft, Monroe. Fifteen cases of whooping cough. Typhoid and malarial fevers in town and country in a very malignant form. The town needs water-works.

VANCE—Dr. J. H. Tucker, Henderson. Measles and whooping cough. Intermittent, remittent and mild typhoid fevers in every part.

[The statement in the last BULLETIN that there had been a few cases of hemorrhagic malarial fever was an error and was not so reported by Dr. Tucker. That form of fever is unknown in Vance.] ED.

WAKE—Dr. P. E. Hines, Raleigh. Seven cases of measles and fourteen of

whooping cough. Malarial and typhoid (18 cases reported) in most parts of the county. An epidemic of hog cholera about Holly Springs. Thirty-one circulars and blanks sent out and seven replies received.

WARREN—Dr. Geo. A. Foote, Warrenton. Two cases of typhoid fever. Whooping cough and malarial fever in many parts.

WASHINGTON—No Board of Health.

WATAUGA—Dr. W. B. Councill, Boone. Ten cases of measles. Typhoid fever in the eastern part (three cases reported).

WAYNE—Dr. W. J. Jones, Jr., Goldsboro. One case of scarlatina and ten of typhoid fever. Malarial troubles in all parts. Chicken cholera.

WILKES—Dr. J. M. Turner, Wilkesboro. Typhoid fever in nearly all parts (twenty cases reported).

WILSON—Dr. N. Anderson, Wilson. Scattering cases of whooping cough in town. Malarial fever in all parts of the county.

YADKIN—Dr. T. R. Harding, Yadkinville. Typhoid fever in nearly all parts. Chicken cholera.

YANCEY—Dr. J. L. Ray, Burnsville. Several cases of typhoid fever. The people in general know very little of sanitation, consequently their premises are often in an unsanitary condition. They need instruction. The jail is in as good condition as it can well be kept in without water-works. The home is about as usual, perhaps a little better cleaned up.

Review of Diseases Reported for July, 1896.

BOWEL DISEASES — From Burke, Chowan, Craven, Davidson, Haywood,

Iredell, McDowell, Macon, New Hanover, Orange, Pitt, Sampson and Stanly—13 counties.

CHOLERA, IN CHICKENS—From Craven, Northampton, Wayne and Yadkin.

CHOLERA, IN HOGS—From Bertie, Buncombe, Chowan, Columbus, Duplin and Wake—6 counties.

DIPHTHERIA—From Craven, Haywood, Mecklenburg, Northampton and Surry.

DYSENTERY—From Chowan, McDowell and Sampson.

INFLUENZA—From Sampson.

MALARIAL FEVER—From Alamance, Bertie, Bladen, Carteret, Caswell, Catawba, Craven, Dare, Davidson, Davie, Duplin, Durham, Forsyth, Gaston, Greene, Guilford, Halifax, Hertford, Lenoir, Lincoln, Mecklenburg, Nash, New Hanover, Northampton, Onslow, Orange, Pender, Perquimans, Person, Pitt, Randolph, Robeson, Sampson, Stanly, Union, Vance, Wake, Warren, Wayne and Wilson—40 counties.

MALARIAL FEVER, HEMORRHAGIC—From Craven and Pender.

MALARIAL FEVER, PERNICIOUS—From Greene and Mecklenburg (imported).

MALARIAL FEVER, TYPHO—From Durham.

MEASLES—From Caldwell, Catawba, Columbus, Duplin, Jackson, McDowell, Sampson, Vance, Wake and Watauga—10 counties.

MILK-SICKNESS—From Clay.

MUMPS—From Caldwell, Cherokee, and Iredell.

SCARLATINA—From Edgecombe, Greene, Mecklenburg, Northampton, Pender and Wayne—6 counties.

TYPHOID FEVER—From Alamance, Alexander, Ashe, Beaufort, Buncombe, Burke, Cabarrus, Caldwell, Carteret, Caswell, Catawba, Cherokee, Chowan, Clay, Columbus, Craven, Cumberland, Dare, Davidson, Duplin, Durham, Edgecombe, Forsyth, Franklin, Gaston, Greene, Guilford, Halifax, Haywood, Hertford, Iredell, Jackson, Johnston, Lenoir, Lincoln, McDowell, Macon, Martin, Mecklenburg, Montgomery, Nash, New Hanover, Northampton, Pasquotank, Pender, Perquimans, Pitt, Randolph, Richmond, Rockingham, Rutherford, Sampson, Stanly, Stokes, Surry, Swain, Transylvania, Union, Vance, Wake, Warren, Watauga, Wayne, Wilkes, Yadkin and Vancey—66 counties.

Summary of Mortuary Reports for July, 1896. (Twenty-six towns.)

	White.	Col'd.	Total.
Aggregate population.....	84,272	60,463	144,735
Aggregate deaths.....	111	146	257
Representing annual death rate per 1000.....	15.8	28.9	21.3
<i>Causes of Death.</i>			
Typhoid Fever.....	13	11	24
Malarial Fever.....	4	13	17
Whooping Cough.....	3	6	9
Measles.....	1	1	2
Pneumonia.....	4	3	7
Consumption.....	16	14	30
Brain diseases.....	2	2	4
Heart diseases.....	2	11	13
Neurotic diseases.....	2	0	2
Diarrheal diseases.....	25	34	59
All other diseases.....	36	50	86
Accident.....	3	0	3
Violence.....	0	1	1
	111	146	257
Deaths under 5 years.....	37	55	92
Still-born.....	5	13	18

Condition of Jails and County Homes by Counties for July, 1896.

COUNTIES.	JAIL.					HOME.				
	General Sanitary Condition.	Number Prisoners confined.	Space allotted each. (In cubic feet.)	Number giving evidence of successful vaccination.	Number who can read and write.	General Sanitary Condition.	Number inmates.	Space allotted each. (In cubic feet.)	Number giving evidence of successful vaccination.	Number who can read and write.
Alamance...	good	17 (a)	.....	.....	.....	good	34	.....	.....	.....
Alexander ..	fair	1	.....	.....	.....	fair	7	.....	.....	.....
Alleghany...	fair	.....	.....	.....	.....	fair	7	.....	.....	0
Anson .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Ashe	good	4	607	.....	3	good	10	600	.....	2
Beaufort	very good	3	.....	.....	.....	very good	11	.....	.....	.....
Bertie	very good	11 (b)	.....	.....	8	very good	16	.....	1	3
Bladen	fair	0	.....	.....	.....	fair	6	.....	.....	.....
Brunswick ..	no change	4	*	0	2	no change	12	800	0	0
Buncombe ..	good	61 (c)	*	8	45	good	35	*	17	15
Burke	no change	14	.....	.....	.....	no change	13	.....	.....	.....
Cabarrus .....	.....	32 (d)	981	6	9	.....	25	*	12	10
Caldwell.....	.....	5	*	0	5	.....	5	*	2	2
Camden .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Carteret	fair	0	.....	.....	.....	fair	0	.....	.....	.....
Caswell	fair	4	.....	.....	.....	fair	27	.....	.....	.....
Catawba	+	9	*	6	4	+	38	*	20	22
Chatham .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Cherokee	fine	5	960	.....	.....	fine	4	*	.....	.....
Chowan	good	12	.....	.....	.....	good	5	.....	.....	.....
Clay .....	.....	3	.....	.....	.....	.....	0	.....	.....	.....
Cleveland ...	good	8	.....	.....	2	good	21	.....	.....	6
Columbus ...	good	5	*	.....	0	good	9	*	.....	0
Craven	+	17	.....	.....	.....	.....	26	.....	.....	.....
Cumberland ..	.....	7	.....	.....	.....	.....	18	.....	.....	.....
Currituck ..	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Dare .....	.....	1	.....	.....	.....	.....	0	.....	.....	.....
Davidson.....	fair	8	.....	.....	.....	fair	25	.....	.....	3
Davie	+	5	.....	1	3	very good	10	.....	2	0
Duplin .....	.....	2	450	.....	1	.....	16	600	2	1
Durham	good	37 (e)	958	.....	.....	good	19	*	.....	.....
Edgecombe ..	fair	10	*	1	2	fair	23	*	2	3
Forsyth.....	good	25	1,000	6	11	good	22	*	6	5

* Space exceeds 1,000 cubic feet. + See Summary of Reports from County Superintendents' of Health. (a) Includes 13 in House of Correction. (b) Includes 4 in House of Correction. (c) Includes 50 in House of Correction. (d) Includes 20 in House of Correction. (e) Includes 18 in House of Correction.

Condition of Jails and County Homes by Counties.—CONTINUED.

COUNTIES.	JAIL.					HOME.				
	General Sanitary Condition.	Number Prisoners confined.	Space allotted each (in cubic feet.)	Number giving evidence of successful vaccination.	Number who can read and write.	General Sanitary Condition.	Number inmates.	Space allotted each (in cubic feet.)	Number giving evidence of successful vaccination.	Number who can read and write.
Franklin	+	6	1,000			very good	27	450		
Gaston	well kept					well kept				
Gates										
Graham										
Granville										
Greene	good					good	8	1,000	4	4
Guilford	very bad	42 (a)				good	43			
Halifax		1					39		6	4
Harnett										
Haywood	good	5				good	3			
Henderson										
Hertford	no change	8	*	0	1	no change	10	*	2	2
Hyde										
Iredell	no change	40 (b)				no change	20			
Jackson		10		2	5		3			
Johnston		6	1,000		1		14	1,000		
Jones										
Lenoir	better	4								
Lincoln	good	2	*	0	0	+	22	600	13	6
McDowell		3					9			
Macon	+						11	600	7	9
Madison										
Martin	fair	6	*	0	0	fair	13	*	5	3
Mecklenburg	good	116 (c)				good	55	*		
Mitchell	bad	8				good	4			
Montgomery	very good	3	500			very good	18	500		
Moore										
Nash	very good	4	600	1	3	very good	30	1,000	6	7
New Hanover	crowded	38 (d)	400	24	33		24	*	20	8
Northampton	good	3	1,000	0	2	good	42	800	10	9
Onslow		5			2		5			1
Orange	not good	6	750	1	3	good	18	1,000	12	10
Pamlico										

* Space exceeds 1,000 cubic feet. + See Summary of Reports from County Superintendents of Health. (a) Includes 17 in House of Correction. (b) Includes 25 in House of Correction. (c) Includes 78 in House of Correction. (d) Includes 10 in House of Correction.

Condition of Jails and County Homes by Counties.—CONTINUED.

COUNTIES.	JAIL.					HOME.				
	General Sanitary Condition.	Number Prisoners confined.	Space allotted each. (In cubic feet.)	Number giving evidence of successful vaccination.	Number who can read and write.	General Sanitary Condition.	Number inmates.	Space allotted each. (In cubic feet.)	Number giving evidence of successful vaccination.	Number who can read and write.
Pasquotank.....		2	*				25	*		
Pender.....	fair	1		0	0	fair	5		0	0
Perquimans.....		3					7			
Person.....	good	6		1	1	good	10		10	3
Pitt.....	good	11	*			good	22	*		
Polk.....	good	5	*	0	3	0				
Randolph.....	no change	8			4	no change	34			6
Richmond.....	fair	20	760	0	15	fair	20	*	0	10
Robeson.....	good	3				good	13			
Rockingham.....	very good	13	772			very good	25	*	17	
Rowan.....										
Rutherford.....		6				†	23			
Sampson.....	very good	0				very good	17			
Stanly.....	good	4	*	0	2	good	7	*	0	2
Stokes.....	good	8	600	2	4	good	12	600	4	4
Surry.....		9 (a)					18			3
Swain.....	good	9	500	0	9	good	3	700	1	0
Transylvania.....		3	*	0	1		8	*	0	1
Tyrrell.....										
Union.....	very good	24				very good	26			
Vance.....		6	*	2	2		13	*	2	2
Wake.....	good	78 (b)				good	64			
Warren.....	good	6		2	6	good	23		4	4
Washington.....										
Watauga.....	good	3				good	8			
Wayne.....	good	6			2	good	13			1
Wilkes.....	no change	4				no change	14			
Wilson.....	good	6			2	good	25		2	3
Yadkin.....	fair	4	1,000	0	1	good	25	1,000	0	6
Yancey.....	†	2	*	2	1	†	2	*		

* Space exceeds 1,000 cubic feet. † See Summary of Reports from County Superintendents of Health. (a) Includes 1 in House of Correction. (b) Includes 67 in House of Correction.

Mortuary Report for July, 1896.

TOWNS AND REPORTERS.	RACES.	POPULATION.		TEMPORARY ANNUAL DEATH RATE PER 1,000.		Typhoid Fever.	Scarlet Fever.	Malarial Fever.	Diphtheria.	Whooping Cough.	Measles.	Pneumonia.	Consumption.	Brain Diseases.	Heart Diseases.	Neurotic Diseases.	Diarrhoeal Diseases.	All Other Diseases.	Accident. Suicide.	Violence.	TOTAL DEATHS.		Deaths under 5 years. Still Born.		
		By Races.	Total.	By Races.	Total.																By Races.	By Towns.			
Asheville.....	White.	8,000		18.0									*7	1	1	2	1				12	4	16	1	
Dr. E. C. Starnes.....	Colored.	4,000	12,000	12.0	16.0	1			2					1							4	16			
CHARLOTTE.....	White.	10,855		11.0					1				1	1		4	3	1				10	26	5	
C. A. Spratt, H. off'r.....	Colored.	8,796	19,651	21.8	15.9	1	2						1	2	4	5	1				16	6	10	2	
Durham.....	White.	4,000		9.0						1							2				3	4	3		
Dr. J. M. Manning.....	Colored.	2,000	6,000	6.0	8.0												1				1				
FAYETTEVILLE.....	White.	3,500		3.4				2				1					1				1	7	1		
Dr. J. V. McGougan.....	Colored.	2,500	6,000	28.8	14.4												3				6	4	4		
GOLDSBORO.....	White.	3,700		16.2									1		1		3				5	5	1		
T. H. Bain, Sec. B. H.....	Colored.	1,700	5,400	35.3	22.2		1						2				2				5	10	1		
GREENSBORO.....	White.	5,500		8.7								1	1		1		5				4	12	3		
J. S. Michaux, City Clk.....	Colored.	2,500	8,000	28.4	18.0																2	6	6		
HENDERSON.....	White.	2,250		26.7		1			1								2	1			5	15	4		
Dr. W. J. Judd.....	Colored.	2,000	4,250	63.0	42.3				1			1					4	4			10	1	3		
HILLSBORO.....	White.	400		30.0			1														1	2			
Dr. D. C. Parris.....	Colored.	300	700	40.0	34.3													1			1				
JACKSONVILLE.....	White.	150		0.0																	0	1			
Dr. E. L. Cox.....	Colored.	100	250	120.0	48.0			1													1				
LENOIR.....	White.	800		30.0		1											1				2	2			
Dr. A. A. Kent.....	Colored.	300	1,100	0.0	21.8																0				
MONROE.....	White.	1,800		33.3		2	1										2				5	5			
Dr. J. M. Blair.....	Colored.	600	2,400	0.0	25.0																0				
Oxford.....	White.	1,500		16.0								1					2				2	8	2		
Dr. T. S. Booth.....	Colored.	1,000	2,500	72.0	38.4												5				6	3			
RALEIGH.....	White.	7,200		20.0									2		1	4	5				12	40		2	
T. P. Sale, Clerk B. H.....	Colored.	6,000	13,200	55.0	37.2	3	1	1					3			5	14				1	28			
ROCKINGHAM.....	White.	1,500		64.6		3										3	1				1	8	3		
Dr. W. H. Steele.....	Colored.	450	1,750	26.7	54.8												1				1		1		
ROCKY MOUNT.....	White.	1,600		15.0		1												1			2	3			
Dr. G. L. Wimberley.....	Colored.	800	2,400	15.0	15.0	1															1				
SALEM.....	White.	3,942		12.2		1												3			4	6	1	1	
C. S. Hauser H. Officer.....	Colored.	342	4,284	70.2	16.8	1						1									2	2			
SALISBURY.....	White.	3,500		24.0		2					2	1		1			2				7	12	2		
Dr. John Whitehead.....	Colored.	1,500	5,000	40.0	28.8	1		2									1				3	2			
SCOTLAND NECK.....	White.	775		0.0																	0	0			
Mayor J. A. Perry.....	Colored.	425	1,200	0.0	0.0																0				
SOUTHPORT.....	White.	800		0.0														1			0	1			
W. H. Pyke, City Clk.....	Colored.	400	1,200	30.0	10.0																0				
TARBORO.....	White.	1,300		18.4									1				1				2	2	1		
Dr. Donald Williams.....	Colored.	1,200	2,500	0.0	9.6																0				
WARRENTON.....	White.	1,000		0.0																	0	0			
Dr. G. A. Foote.....	Colored.	500	1,500	0.0	0.0																0				
WASHINGTON.....	White.	3,000		12.0													2	3	1		3	11	2		
Dr. Joshua Tayloe.....	Colored.	2,500	5,500	38.4	24.0		2							1			2				8	6			
WELDON.....	White.	700		34.3			1					1									2	3	1		
Mayor J. T. Gooch.....	Colored.	750	1,450	16.0	24.8												1				1				
Wilmington.....	White.	9,000		12.0								3					3	3			2	36	4	3	
Dr. J. C. Shepard.....	Colored.	13,000	22,000	24.9	19.6	2	4					2		4		5	10				2	8	7		
Wilson.....	White.	2,500		28.8			1											4	1		6	7	3	1	
Dr. N. Anderson.....	Colored.	2,000	4,500	6.0	18.7							1									1				
WINSTON.....	White.	5,200		16.1								2	1				1	1			13	20	2	1	
Dr. John Bynum.....	Colored.	4,800	10,000	32.5	24.0	1							2				5	5			1				

*Visitors.

METEOROLOGICAL SUMMARY FOR NORTH CAROLINA, JULY, 1896. Furnished by the North Carolina Agricultural Experiment Station and Climate and Crop Service.

H. B. BATTLE, PH. D., DIRECTOR.

C. F. VON HERRMANN, METEOROLOGIST.

STATIONS.	TEMPERATURE, (DEGREES FAHR.)								NO. OF DAYS.					Prevailing Wind.	
	Monthly Mean.	Highest.	Date.	Mean Maximum.	Lowest.	Date.	Mean Minimum.	Monthly Range.	Mean Daily Range.	Total Precipitation. (in inches)	Clear.	Partly Cloudy.	Cloudy.		Rainy.
Asheville.....	72.4	90	29 30	81.8	49	9	62.9	41	18.9	7.26	11	15	5	16	N
Beaufort.....	79.2	91	31	83.4	67	18	75.0	24	8.4	7.52	16	3	12	13	S W
Charlotte.....	78.0	98	50	86.4	60	9	69.6	38	16.8	6.38	11	11	9	15	S
Chapel Hill.....	79.8	99	28 29	89.3	62	1	70.3	37	19.0	8.52	17	7	7	12	W
Greensboro.....	77.2	94	31	85.0	62	9	69.4	32	15.6	9.55	.....	.....	.....	14	.....
Henderson.....	79.5	100	28 29	88.8	64	1	70.2	36	18.6	8.16	8	14	9	11	S
Littleton.....	78.5	100	28 29	87.7	59	1	68.3	41	20.4	7.12	4	10	17	15	S W
Louisburg.....	79.6	98	28	88.3	61	1	70.8	37	17.5	7.22	.....	.....	.....	10	.....
Lenoir.....	74.3	91	30	79.7	56	9	70.5	35	9.2	7.83	7	9	15	18	S W
Monroe.....	78.2	95	29 30	86.5	61	9	70.0	34	16.5	9.21	16	7	8	12	S W
Morganton.....	73.4	90	29 31	80.3	60	9	71.1	30	9.2	9.47	.....	.....	.....	9	.....
Mt. Airy.....	74.8	93	27 30	84.1	55	2 9	65.6	38	18.5	7.89	0	17	14	13	S W
Marion.....	75.1	94	30	83.1	54	9	67.1	40	16.0	7.28	3	20	8	23	W
Newbern.....	80.6	96	29 31	86.6	68	18	74.5	28	12.1	11.61	.....	.....	.....	17	.....
Oak Ridge.....	77.8	98	29 30	87.7	59	9	68.0	59	19.7	8.75	15	7	9	11	W
Pittsboro.....	79.0	96	29	86.3	64	2	71.7	32	14.6	8.80	9	15	7	10	S W
Raleigh.....	79.6	98	29	88.0	63	18	71.2	35	16.8	5.23	4	14	13	14	S W
Roxboro.....	78.0	98	29	88.1	58	8	67.8	40	20.3	12.56	12	9	10	12	.....
Rockingham.....	81.0	102	30	90.5	60	8	71.4	42	19.1	9.82	18	5	8	10	W
Southport.....	80.0	93	31	85.8	69	18 30	74.2	24	11.6	7.46	2	23	6	14	S W
Salisbury.....	78.6	100	30	87.8	60	9	69.3	40	18.5	9.28	11	5	15	14	S W
Selma.....	81.2	102	29	90.5	63	1	72.0	39	18.5	3.23	.....	.....	.....	10	.....
Saxon.....	78.8	102	29 30	89.1	57	9	68.5	35	20.6	10.44	7	10	14	13	S W
Tarboro.....	80.6	103	30	91.4	61	5	69.7	42	21.7	4.71	14	9	8	12	S
Weldon.....	80.0	99	28 29	89.2	63	1 23	70.7	36	18.5	9.02	11	9	11	15	S
Wilmington.....	79.8	98	30	86.8	66	18	72.9	32	14.9	5.72	4	18	9	18	S W

Summary for July, 1896.

Mean barometer 30.12 inches; normal for July 30.03. Highest barometer 30.38 on the 19th at Hatteras. Lowest barometer 29.73 on the 8th at Charlotte. Mean temperature 77.4 degrees; normal for July 77.6. Highest temperature 104 on the 30th at Tarboro. Lowest temperature 44 on the 9th at Highlands. Average rainfall 8.19 inches; normal for July 5.52 inches. Greatest monthly rainfall 13.77 inches at Flat Rock; least monthly rainfall 3.23 inches at Selma. Average number of clear days 10; partly cloudy 11; cloudy 10; rainy 14. Prevailing wind direction Southwest. Average velocity 7.8 miles per hour. Normal direction for July Southwest; normal velocity 6.7 miles per hour.

BULLETIN

OF THE

NORTH CAROLINA BOARD OF HEALTH.

Published Monthly at the Office of the Secretary of the Board, at Raleigh, N. C.

GEO. G. THOMAS, M. D., <i>Pres.</i> ,.....Wilmington. S. WESTRAY BATTLE, M. D.,.....Asheville. W. H. HARRELL, M. D.,.....Williamston. JOHN WHITEHEAD, M. D.,.....Salisbury. RICHARD H. LEWIS, M. D., <i>Secretary and Treasurer</i> , Raleigh.	W. P. BEALL, M. D.,.....Greensboro. W. J. LUMSDEN, M. D.,.....Elizabeth City. PROF. F. P. VENABLE,.....Chapel Hill. J. C. CHASE, CIV. ENG.,.....Wilmington.
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VOL. XI.

SEPTEMBER, 1896.

No. 6.

The Proposed Health Conference at Charlotte.

On the 15th of October there will be held at Charlotte the third annual "Health Conference with the People." Our readers are already familiar with the methods observed in these meetings, that they are essentially popular in character, the object in view being to interest and instruct the people in sanitary matters. Papers of a practical character are read and discussed by members of the Board of Health and persons in the audience. In addition the people are urged to ask questions on any subject relating to hygiene, and they are answered by members of the Board or others who are competent.

The meeting at Charlotte promises to be an interesting one, and valuable to that community particularly, but indirectly to the State. Those previously held at Salisbury and Washington have, we have been assured, done much to advance the cause of sanitation in those communities. We

trust that the citizens of that progressive city will show in this, the most important of all mundane matters, health, the same interest that they are wont to display in other movements looking to the welfare and upbuilding of their city. But we hope that the attendance will not be limited to residents of the city. Charlotte is such a railroad centre that persons from neighboring counties could easily attend. We believe that they would be repaid for their trouble. It is especially desirable that all Superintendents of Health, as well as other health officers and physicians generally, within reach, should put in an appearance. They are all not only invited but are requested to get as many of their people as possible to attend.

There will be three sessions during the one day, morning, afternoon and night. A number of papers have been promised, and Surgeon J. J. Kinyoun, the distinguished bacteriologist, in charge of the laboratory of the Marine Hos-

pital Service at Washington, will deliver, at night, an address on "Bacteria" illustrated with the stereopticon. Several days before the meeting the full programme will be published in the Charlotte papers and otherwise distributed.

The American Public Health Association.

We have just returned from the 24th annual meeting of the above-named association held at Buffalo, N. Y., 15th to 18th insts., and feel that we would not be treating our readers fairly if we failed to bring to their attention at least one or two matters of great importance and interest that were brought up and discussed. We wish that our space permitted a more extended notice, as the meeting was the most interesting and practically valuable that we have ever attended. Of course much old straw was threshed over, but nevertheless a good crop of solid grain was harvested.

The subjects alluded to above were a new (to us) method of making a diagnosis in typhoid fever and formaldehyd gas as a disinfectant. On the former subject a paper entitled "The Serum Diagnosis Test for Typhoid Fever" was read by Dr. Wyatt Johnston of Montreal, Bacteriologist to the Provincial Board of Health of Quebec. The test, discovered by Weidel (if we caught the name correctly—we are not a bacteriologist), consisted in mixing the serum of the blood of a suspected case of typhoid fever, which he obtained by bleeding from the arm and used fresh, with a pure culture of typhoid bacilli. If the case were typhoid the bacilli, which normally keep up a constant and rapid motion, would, in from 15

minutes to an hour, become agglutinated to one another and still, whereas, if the disease were not typhoid, their movements would not be interfered with in the least. Dr. Johnston stated that he had ascertained that it was not at all necessary to draw enough blood to allow separation of the pure serum from the clot, but that a drop of dried blood with which a little water was mixed would answer just as well, having precisely the same effect. He exhibited two specimens which confirmed his statements exactly, and although the bacilli had been mixed with normal blood more than 24 hours, they were still quite active. The beauty of this test is its simplicity, and it can be made by any one having a good microscope, slides for the "hanging drop" mounting and a pure culture of the bacillus typhosus which could no doubt be obtained from the commercial laboratories.

The subject Formaldehyd was treated in three papers: "Practical Use of Formic Aldehyde as a Disinfectant" by Prof. F. C. Robinson, Prof. of Chemistry in Bowdoin College and Member of the State Board of Health of Maine; "Preliminary Note on the use of Formaldehyd for Room and Car Disinfection, etc." by Surgeon J. J. Kinyoun, M. H. S.; and "A Convenient Lamp for Generating Fomealdehyd Gas," by E. A. DeSchweinitz, M. D., Ph. D., of the National Bureau of Animal Industry. Nothing could be of more importance or interest to practical sanitarians, for nothing is so much desired by them as a safe and reliable aerial disinfectant, and we could but feel gratified at the fact that two of the three gentlemen reporting work on this subject—the last two—were natives of our own State. We regret that we cannot go

into the subject at length but must content ourself with stating very briefly some of the results given.

Prof. Robinson said that he had thoroughly disinfected a room 12x20x13 feet in one hour's time by burning one litre (about a quart) of wood alcohol in a lamp of his own construction which he exhibited, killing cultures of bacteria under the bed-clothes, in a mattress (not inside the ticking) rolled around them and under $\frac{1}{2}$ inch of sand. Dr. Kinyoun, who has been experimenting with the gas for several months, stated that air saturated with Formaldehyd killed germs in from $1\frac{1}{2}$ to 2 minutes. Exposure to $1\frac{1}{4}$ % of the gas for 24 hours resulted in the death of germs protected by 10 to 12 layers of blanket, and also to those covered by from 36 to 40 layers of cotton sheeting. By using a 10 to 20 % solution in Roux's apparatus a room could be disinfected in 20 minutes. He found that none of the car-furnishings were faded except two pieces of silk. The bacilli most easily killed were those of diphtheria and the next weakest were the tubercle bacilli. We shall recur to this important subject in a future issue.

In conclusion we wish to express our appreciation of the beauty of the city of Buffalo, not only from the æsthetic point of view, with its handsome buildings, lovely parks and beautifully shaded asphalt streets, of which it has nearly two hundred miles, but also from the sanitary, for it is decidedly the *cleanest* city we have ever visited. We also desire to acknowledge the kindness and hospitality extended to us through Dr. Wende, the most efficient Commissioner of Health. Dr. Lucien Howe, Dr. Clark and others of the local committee.

Dr. Jerome Cochran.

It is with much regret that we note the death, since we last went to press, of Dr. Jerome Cochran, for many years State Health Officer of Alabama. Dr. Cochran was a gentleman of acute and cultivated intellect, of high reputation in his profession. He was a leading authority in this country on the subject of yellow fever, having had a very extensive experience with that dread disease. He will be greatly missed in the profession at large, but particularly in the field of preventive medicine, to which he devoted the later years of his life.

Summary of Reports from County Superintendents of Health, for August, 1896, (eighty counties reporting).

In the blanks on which these reports are made the following items are called for:

1. The number of cases of small-pox, measles, whooping cough, scarlatina, diphtheria, typhoid fever, pernicious malarial fever, hemorrhagic malarial fever, yellow fever and cholera which have occurred in the county during the past month.
2. The diseases which have been prevalent in the county, and in what parts.
3. Epidemics among domestic animals.
4. Remarks as to special unsanitary conditions in the county.

In few counties do physicians generally report these details to the Superintendent, though furnished with blanks for that purpose, and in most cases he has to depend upon himself alone in making his report.

Details as to the jails, houses of correction, and county homes are also

given in these reports and will be found tabulated on other pages.

ALAMANCE—Dr. R. A. Freeman, Burlington. Several cases of typhoid fever. Malarial fevers in some parts. The water in several wells shows their unfitness for use. The public buildings are in as good condition as circumstances will allow.

ALEXANDER—Dr. T. F. Stevenson, Taylorsville. Two cases of typhoid fever.

ALLEGHANY—Dr. Robt. Thompson, Sparta. Diphtheria in the north-east and south-west (seven cases reported). An epidemic of unknown name among sheep. Some improvement is needed on the buildings at the county home, but the sanitation is good.

ANSON—Dr. E. S. Ashe, Wadesboro. No report.

ASHE—Dr. L. C. Gentry, Crumpler. Three cases of diphtheria and eight of typhoid fever in the northern part.

BEAUFORT—Dr. Joshua Tayloe, Washington. One case of typhoid fever.

BERTIE—Dr. H. V. Dunstan, Windsor. Eight cases of typhoid, two of pernicious and three of hemorrhagic malarial fever. Typhoid in the eastern and catarrhal and malarial fevers in all parts.

BLADEN—Dr. Newton Robinson, Elizabethtown. Malarial fever, but less than last month.

BRUNSWICK—Dr. D. I. Watson, Southport. Fifteen cases of whooping cough, in many sections.

BUNCOMBE—Dr. E. C. Starnes, Asheville. A number of cases of typhoid fever.

BURKE—Dr. J. L. Laxton, Morganton. Five cases of typhoid fever. Diarrhœa.

CABARRUS—Dr. Robert S. Young, Concord. One case of diphtheria. Typhoid (eight cases reported) and malarial fever in all parts.

CALDWELL—Dr. A. A. Kent, Lenoir. Typhoid fever (37) and whooping cough (200) in all parts. Sanitary condition about the homes of the laboring class of people much neglected; hence the large number of cases of typhoid fever. Condition of public buildings as good as can be without water works. Two prisoners were recently brought into jail from Charlotte with typhoid fever.

CAMDEN—No Board of Health.

CARTERET—Dr. George N. Ennett, Beaufort. No report.

CASWELL—Dr. W. O. Spencer, Yanceyville. Some typhoid and malarial fevers in all parts. Dr. Spencer writes that he is no longer Superintendent of Health and that no new one has been elected.

CATAWBA—Dr. D. McD. Yount, Newton. Ten cases of typhoid fever. Since the hot weather following the heavy freshets in July malarial fevers have prevailed along every water-course, no matter how small, all over the county. The jail and county home have been thoroughly overhauled and cleaned.

CHATHAM—No report.

CHEROKEE—Dr. J. F. Abernathy, Murphy. Whooping cough and mumps subsiding. Still some meningitis, not very fatal. Some pneumonia. New court-house just completed.

CHOWAN—Dr. R. H. Winborne, Rockyhook. Typhoid, intermittent and remittent fevers to some extent in

all parts. Hog cholera in many parts. Some deaths among cows with symptoms of active congestion of the brain. Thorough drainage of swamps and lowlands is the chief sanitary need of the county.

CLAY—Dr. W. E. Sanderson, Hayesville. Three cases of typhoid fever.

CLEVELAND—Dr. O. P. Gardner, Shelby. Four cases of whooping cough.

COLUMBUS—Dr. I. Jackson, Whiteville. A few cases of whooping cough, 2 of measles and 6 of typhoid fever of mild form.

Craven—Dr. J. W. Duguid, Newbern. No report.

CUMBERLAND—Dr. J. Vance McGowan, Fayetteville. Two cases of typhoid fever, one of pernicious and a few of hemorrhagic malarial fever.

CURRITUCK—No Board of Health.

DARE—Dr. W. B. Fearing, Manteo. Three cases of typhoid fever. Malarial fever in all parts.

DAVIDSON—Dr. John Thames, Lexington. Malarial and typhoid fever in some parts.

DAVIE—Dr. James McGuire, Mocksville. One case of diphtheria. Continued and malarial fevers in all parts. The condition of the jail is as good as its construction will permit.

DUPLIN—Dr. J. C. Grady, Magnolia. Four cases of measles, 6 of whooping cough and 2 of diphtheria. Typhoid and malarial fevers in all parts. Sanitary condition of county better since we have been having refreshing showers. The public buildings have been cleaned recently.

DURHAM—Dr. John M. Manning, Durham. Four cases of typhoid fever.

Catarrhal and malarial fevers in nearly all parts.

EDGEcombe—Dr. Donald Williams, Tarboro. Malarial fevers in some parts.

FORSYTH—Dr. E. F. Strickland, Bethania. Diphtheria and typhoid fever in some parts. The persistent dry weather and very low water-courses have caused an unusually large amount of malarial fever for this section.

FRANKLIN—Dr. E. S. Foster, Louisburg. We have had quite a large number of cases of typhoid fever (continued fever of an atypical typhoid type). Mortality about 8 per cent. No appreciable cause. Otherwise health of county very good. The jail is so constructed that I cannot have the sanitary condition desired. I have just been there with the board of County Commissioners and made such suggestions as I thought best and they will have changes made as soon as possible.

GATES—No Board of Health.

GASTON—Dr. J. H. Jenkins, Dallas. Typhoid and malarial fevers. There is bad drainage along some small streams. Big Long creek is a continual source of malarial diseases.

GRAHAM—No Board of Health.

GRANVILLE—Dr. T. S. Booth, Oxford. Seven cases of typhoid fever. Malarial fevers in all parts.

GREENE—Dr. Joseph E. Grimsley, Snow Hill. One case of whooping cough and 12 of typhoid fever. Malarial fever in all parts.

GUILFORD—Dr. W. J. Richardson, Greensboro. Six cases of whooping cough. Malarial fevers in all parts.

HALIFAX—Dr. I. E. Green, Weldon. Malarial diseases in all parts.

HARNETT—No report.

HAYWOOD—Dr. J. Howell Way, Waynesville. Whooping cough epidemic for some weeks—now declining. Ten cases of diphtheria, all in one section within an area of four miles, and, with possibly one exception, among the unsanitary classes, with a mortality of about 40 per cent. The instructions of the State Board of Health were carried out as far as possible. Twelve cases of typhoid fever. The county officers feel a just pride in maintaining the excellent sanitary condition of the public institutions.

HENDERSON—No Board of Health.

HERTFORD—Dr. John W. Tayloe, Union. Three cases of measles, 16 of typhoid, 4 of pernicious malarial and 4 of hemorrhagic malarial fever.

HYDE—No Board of Health.

IREDELL—Dr. W. J. Hill, Statesville. Malarial and typhoid fevers to some extent.

JACKSON—Dr. W. F. Tompkins, Webster. Whooping cough (5) and typhoid fever (3) not so bad as last month. I had one case of typhoid in the jail—the daughter of the sheriff; recovered. So far there are no signs of spreading to the prisoners or other members of the family.

JOHNSTON—Dr. R. J. Noble, Selma. Two cases of typhoid fever. Hog and chicken cholera in all parts.

JONES—No Board of Health.

LENOIR—Dr. James M. Parrott, Kinston. Diphtheria (2 cases reported) and malarial fever in the west. The jail needs sewerage and better ventilation.

LINCOLN—Dr. Thos. F. Costner, Lincolnton. Ten cases of whooping

cough, 4 of typhoid and 2 of hemorrhagic malarial fever. Malarial fever in all parts. The jail has just been whitewashed inside.

MCDOWELL—Dr. Geo. I. White, Marion. Typhoid fever in the central and south-western parts.

MACON—Dr. S. H. Lyle, Franklin. Whooping cough. Twenty-two cases of typhoid fever. Influenza in light form in nearly all parts.

MADISON—Dr. Jas. K. Hardwicke, Marshall. Seven cases of typhoid fever.

MARTIN—Dr. W. H. Harrell, Williamston. Two cases of typhoid fever, 1 of pernicious and 1 of hemorrhagic malarial fever. Other forms of malarial disease. The jail is not properly ventilated.

MECKLENBURG—Dr. H. M. Wilder, Charlotte. Seven cases of diphtheria and 8 of typhoid fever. Texas fever in cattle of one herd. The sanitary condition of the county is good except on the western side of the city, where a creek is in a condition conducive to malarial disease. The jail is in an unsanitary condition, owing to overcrowding due to length of time between terms of court.

MITCHELL—Dr. C. E. Smith, Bakersville. Six cases of typhoid fever.

MONTGOMERY—Dr. W. A. Simmons, Troy. Two cases of typhoid and some continued fever.

MOORE—Dr. Gilbert McLeod, Carthage. No report.

NASH—Dr. J. J. Mann, Nashville. Typhoid fever in a great many parts.

NEW HANOVER—Dr. J. C. Shepard, Wilmington. Two cases of diphthe-

ria, 8 of typhoid fever, 5 of pernicious and 1 of hemorrhagic malarial fever. Malarial fevers in all parts.

NORTHAMPTON—Dr. H. W. Lewis, Jackson. Six cases of diphtheria, 20 of typhoid and of hemorrhagic malarial fever. Malarial and typhoid fevers in all parts. The county is not in good sanitary condition.

ONSLow—Dr. E. L. Cox, Jacksonville. Two cases of typhoid and 5 of hemorrhagic malarial fever. A few cases of hog cholera. The swamps and rivers are very low and it has been very hot, resulting in an unusual amount of malarial fever.

ORANGE—Dr. D. C. Parris, Hillsboro. Some whooping cough, two 2 of scarlatina and 15 of typhoid fever. Great dryness and heat and low water in streams and ponds have caused much malarial disease.

PAMLICO—No Board of Health.

PASQUOTANK—Dr. J. E. Wood, Elizabeth City. One case of typhoid fever. Malarial diseases in all parts.

PENDER—Dr. Geo. F. Lucas, Currie. Four cases of typhoid fever and 1 of pernicious malarial fever. Malarial fevers in all parts.

PERQUIMANS—Dr. J. W. Speight, Hertford. Twenty-three cases of typhoid fever, 1 of pernicious and 1 of hemorrhagic malarial fever. Intermittent and remittent fevers in all parts. Dr. Speight has resigned and the County Commissioners have elected Dr. C. C. Winslow, of Winfall, to succeed him.

PERSON—Dr. J. A. Wise, Roxboro. Two cases of typhoid fever, 3 of pernicious and 1 of hemorrhagic malarial fever.

PITT—Dr. Frank W. Brown, Green-

ville. Many cases of whooping cough. I hear that typhoid fever is prevalent in most parts of the county, but I have no reports from physicians.

POLK—Dr. C. J. Kenworthy, Tryon. No diseases reported.

RANDOLPH—Dr. T. T. Ferree, Ashboro. Typhoid fever in different parts.

RICHMOND—Dr. W. H. Steele, Rockingham. Typhoid fever in most parts.

ROBESON—Dr. T. A. Norment, Jr., Lumberton. Catarrhal and malarial fevers in all parts.

ROCKINGHAM—Dr. D. W. Courts, Reidsville. Two cases of diphtheria and of typhoid fever.

ROWAN—Dr. John Whitehead, Salisbury. Six cases of whooping cough and 2 of typhoid fever. Malarial diseases in all parts.

RUTHERFORD—Dr. E. B. Harris, Rutherfordton. A few cases of typhoid fever

SAMPSON—Dr. Jno. A. Stevens, Clinton. A few cases of measles and chicken pox. Some malarial and typhoid fevers. Hog cholera. Insanity is certainly on the increase; 4 cases were sent to the asylum during the month.

STANLY—Dr. D. P. Whitley, Millington. More sickness than usual. Typhoid (25) and malarial fevers in all parts.

STOKES—Dr. W. L. McCanless, Danbury. Three cases of typhoid fever.

SURRY—Dr. John R. Woltz, Dobson. Four cases of diphtheria and 22 of typhoid fever. Diarrhea.

SWAIN—Dr. A. M. Bennett, Bryson City. Typhoid fever (4 cases reported) in all parts. There has been an epidemic of some kind among cattle, exhibited as follows: There is an un-

controllable itching in some part of the body, usually the face and throat, and as the cow rubs the parts bloody water will exude from them. The place affected becomes swollen, the rubbing continues and the animal becomes insane and dies in about 24 hours.

TRANSYLVANIA—Dr. M. M. King, Brevard. Six cases of whooping cough and 2 of typhoid fever.

TYRRELL—Dr. B. W. Cohn, Columbia. No report.

UNION—Dr. J. E. Ashcraft, Monroe. Eight or 10 cases of measles and 6 of whooping cough. Typhoid and malarial fevers still very prevalent in town and country.

VANCE—Dr. J. H. Tucker, Henderson. Measles and whooping cough. Intermittent, bilious remittent and a few cases of typhoid fever throughout the county. Besides these we have had many cases of simple continued fever in which there is an absence of the more prominent symptoms of malarial fever and none at all of typical typhoid fever. These cases run usually a mild course of 15 or 20 days and are not greatly influenced by medicinal treatment.

WAKE—Dr. P. E. Hines, Raleigh. Five cases of whooping cough, 1 of diphtheria and 27 of typhoid fever. Intermittent and simple continued fever in all parts of county reporting. The public buildings are in as good condition as could be expected when all are constantly used. Eleven replies received from 31 postal cards asking for reports.

WARREN—Dr. Geo. A. Foote, Warrenton. One case of typhoid fever. Many cases of whooping cough and bilious fever of mild form in the malarial parts of the county.

WASHINGTON—No Board of Health.

WATAUGA—Dr. W. B. Councill, Boone. Whooping cough (6) and measles (4).

WAYNE—Dr. W. J. Jones, Jr., Goldsboro. Fifteen cases of typhoid fever and 1 of hemorrhagic malarial fever. Malarial troubles in all parts.

WILKES—Dr. J. M. Turner, Wilkesboro. Typhoid fever in nearly all parts.

WILSON—Dr. N. Anderson, Wilson. Several cases of whooping cough and 2 of typhoid fever. A complete system of water-works and sewerage has been supplied to the jail.

YADKIN—Dr. T. R. Harding, Yadkinville. Typhoid fever in nearly all parts. More malarial fever than for a number of years. Two cases of malignant diphtheria, but no spread of the disease so far.

YANCEY—Dr. J. L. Ray, Burnsville. Typhoid fever to a slight extent in some parts. The jail is in very good condition now; the jailer takes special pains to keep it clean. The home is in a little better condition than usual.

Review of Diseases for August, 1896.

BOWEL DISEASES*—From Surry.

CHOLERA, IN CHICKENS—From Johnston.

CHOLERA, IN HOGS—From Chowan, Johnston, Onslow and Rutherford.

DIPHTHERIA—From Alleghany, Cabarrus, Davie, Duplin, Forsyth, Haywood, Lenoir, Mecklenburg, New Han-

over. Northampton, Rockingham, Wake and Yadkin—13 counties.

INFLUENZA—From Macon.

MALARIAL FEVER—From Alamance, Bertie, Bladen, Cabarrus, Caswell, Catawba, Cherokee, Chowan, Cumberland, Dare, Davidson, Davie, Durham, Forsyth, Gaston, Granville, Greene, Guilford, Halifax, Hertford, Iredell, Lenoir, Lincoln, Martin, New Hanover, Northampton, Onslow, Orange, Pasquotank, Pender, Perquimans, Person, Robeson, Rowan, Sampson, Stanly, Union, Vance, Wake, Warren, Wayne and Yadkin—42 counties.

MALARIAL FEVER, HEMORRHAGIC—From Bertie, Cumberland, Hertford, Lincoln, Martin, New Hanover, Northampton, Onslow, Perquimans, Person and Wayne—11 counties.

MALARIAL FEVER, PERNICIOUS—From Bertie, Hertford, Martin, New Hanover, Pender, Perquimans and Person—7 counties.

MEASLES—From Columbus, Duplin, Edgecombe, Hertford, Sampson, Union and Watauga—7 counties.

SCARLATINA—From Orange.

TYPHOID FEVER—From Alamance, Alexander, Ashe, Beaufort, Bertie, Buncombe, Burke, Cabarrus, Caldwell, Caswell, Catawba, Chowan, Clay, Columbus, Cumberland, Dare, Davidson, Duplin, Durham, Forsyth, Franklin, Gaston, Granville, Greene, Haywood, Hertford, Iredell, Jackson, Johnston, Lincoln, McDowell, Macon, Madison, Martin, Mecklenburg, Mitchell, Mont-

gomery, Nash, New Hanover, Northampton, Onslow, Orange, Pasquotank, Pender, Perquimans, Person, Pitt, Randolph, Richmond, Rockingham, Rowan, Rutherford, Sampson, Stanly, Stokes, Surry, Swain, Transylvania, Union, Vance, Wake, Warren, Wayne, Wilkes, Wilson, Yadkin and Yancey—67 counties.

VARICELLA—From Sampson.

WHOOPIING COUGH—From Brunswick, Caldwell, Cherokee, Cleveland, Columbus, Duplin, Greene, Guilford, Haywood, Jackson, Lincoln, Macon, Orange, Pitt, Rowan, Transylvania, Union, Wake, Warren, Watauga and Wilson—21 counties.

*Cholera infantum, cholera morbus and dysentery, when mentioned by reporters, are given separate headings.

Summary of Mortuary Reports for August, 1896. (Twenty-seven towns.)

	White.	Col'd.	Total.
Aggregate population.....	84,972	60,863	145,835
Aggregate deaths.....	122	140	262
Representing annual death rate per 1000.....	17.2	27.6	21.5

Causes of Death.

Typhoid Fever.....	20	14	34
Malarial Fever.....	9	24	33
Diphtheria.....	3	1	4
Whooping Cough.....	0	1	1
Pneumonia.....	1	1	2
Consumption.....	10	20	30
Brain diseases.....	7	6	13
Heart diseases.....	8	5	13
Neurotic diseases.....	1	5	6
Diarrheal diseases.....	23	17	40
All other diseases.....	34	44	78
Accident.....	4	2	6
Suicide.....	2	0	2
	122	140	262
Deaths under 5 years.....	37	57	94
Still born.....	6	10	16

Condition of Jails and County Homes by Counties for August, 1896.

COUNTIES.	JAIL.					HOME.				
	General Sanitary Condition.	Number Prisoners confined.	Space allotted each. (In cubic feet.)	Number giving evidence of successful vaccination.	Number who can read and write.	General Sanitary Condition.	Number inmates.	Space allotted each. (In cubic feet.)	Number giving evidence of successful vaccination.	Number who can read and write.
Alamance...	†	14 (a)	.....	.....	.....	†	29	.....	.....	.....
Alexander .	good	0	.....	.....	.....	good	7	.....	.....	.....
Alleghany...	.....	.....	.....	.....	.....	good +	8	.....	.....	.....
Anson .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Ashe	good	6	600	.....	2	good	11	800	.....	1
Beaufort ...	very good	5	.....	.....	.....	very good	12	.....	.....	.....
Bertie	very good	12 (b)	.....	.....	8	very good	15	.....	3	5
Bladen	good	0	.....	.....	.....	good	6	.....	.....	.....
Brunswick .	no change	8	*	0	4	no change	12	800	0	0
Buncombe ..	.....	88 (c)	*	.....	50	.....	35	*	17	15
Burke	no change	17	.....	7	.....	no change	17	504	9	7
Cabarrus .....	.....	35 (d)	*	2	8	.....	26	*	8	8
Caldwell....	†	3	*	0	3	†	5	*	2	3
Camden .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Carteret .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Caswell .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Catawba	good	10	*	3	4	good	34	*	12	.....
Chatham .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Cherokee .....	.....	6	.....	.....	.....	.....	4	.....	.....	.....
Chowan	good	10	*	.....	.....	good	5	*	2	0
Clay .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Cleveland ..	.....	10	.....	.....	.....	.....	23	.....	.....	.....
Columbus ...	good	8	*	.....	1	good	11	*	.....	0
Craven .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Cumberland	very good	7	.....	.....	.....	very good	18	.....	.....	.....
Currituck ..	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Dare .....	.....	1	.....	.....	.....	.....	.....	.....	.....	.....
Davidson....	good	10	.....	.....	.....	good	27	.....	.....	.....
Davie	†	7	.....	1	4	good	11	.....	2	0
Duplin	fair	0	.....	.....	.....	fair	18	450	.....	.....
Durham .....	.....	42 (e)	667	.....	.....	.....	19	*	.....	.....
Edgecombe ..	fair	10	*	2	2	fair	24	*	1	3
Forsyth.....	good	8	1,000	0	2	good	26	*	7	8

* Space exceeds 1,000 cubic feet. † See Summary of Reports from County Superintendents of Health. (a) Includes 10 in House of Correction. (b) Includes 3 in House of Correction. (c) Includes 80 in House of Correction. (d) Includes 25 in House of Correction. (e) Includes 15 in House of Correction.

Condition of Jails and County Homes by Counties.—CONTINUED.

COUNTIES.	JAIL.					HOME.				
	General Sanitary Condition.	Number Prisoners confined.	Space allotted each, (in cubic feet.)	Number giving evidence of successful vaccination	Number who can read and write.	General Sanitary Condition.	Number inmates.	Space allotted each, (in cubic feet.)	Number giving evidence of successful vaccination.	Number who can read and write.
Franklin	†	6				good	27			
Gaston	good					good				
Gates										
Graham										
Granville	good	5				good	28			
Greene	good	1	600			good	6	1,000		
Guilford	very bad	48 (a)				good	43			
Halifax		9		3	2		40		4	6
Harnett										
Haywood	good †	4				good	4			
Henderson										
Hertford	no change	1	*		0	no change	9	*		2
Hyde										
Iredell	no change					no change	25			
Jackson		8	900	2	4		3			
Johnston		5	1,000				15	1,000		
Jones										
Lenoir	†	5								
Lincoln	†	3	*	0	1	good	21	600	12	6
McDowell										
Macon							8	600	6	7
Madison	crowded	20	400	7	12		19	500	9	14
Martin	†	9	*	0	4	good	14	*	4	4
Mecklenburg	†	126 (b)				good	58	*		
Mitchell	bad	8				good	4			
Montgomery		3	500				17	500		
Moore										
Nash		6	600	3	6		34	1,000	7	4
New Hanover	crowded	62 (c)		12	45	good	20	*	25	8
Northampton	good	4	1,000	0	2	good	40	1,000	8	6
Onslow		6					5			
Orange	not good	3	500	1	1	good	18	1,000	9	8
Pamlico										

* Space exceeds 1,000 cubic feet. † See Summary of Reports from County Superintendents of Health. (a) Includes 16 in House of Correction. (b) Includes 81 in House of Correction. (c) includes 7 in House of Correction.

Condition of Jails and County Homes by Counties.—CONTINUED.

COUNTIES.	JAIL.					HOME.				
	General Sanitary Condition.	Number Prisoners confined.	Space allotted each, (in cubic feet.)	Number giving evidence of successful vaccination.	Number who can read and write.	General Sanitary Condition.	Number inmates.	Space allotted each, (in cubic feet.)	Number giving evidence of successful vaccination.	Number who can read and write.
Pasquotank.....		2	*				26	*		
Pender.....	good	1		0		good	5		0	
Perquimans.....		4					6			
Person.....	good	0				good	9		9	
Pitt.....	fair	12	*		2	fair	21	*		2
Polk.....	good	3	*	0	2		0			
Randolph.....	no change	8				no change	30			
Richmond.....	fair	18	845	0	12	fair	24	*	0	2
Robeson.....	good	4				good	12			
Rockingham.....	good	7	*			good	25	*	17	12
Rowan.....		6	500	3	2		18	500	7	7
Rutherford.....	very good	8				very good	20			
Sampson.....	very good	0				very good	17			
Stanly.....	good	3	*	0	1	good	8	*	0	2
Stokes.....	good	7	600	2	4	good	13	600	3	5
Surry.....		10 (a)	760				22	*		3
Swain.....	good	6				good	3			
Transylvania.....	good	4	*	0	1	good	5	*	0	
Tyrrell.....										
Union.....	good	25				good	25			
Vance.....	very good	9	*	1	6	very good	13	*	2	2
Wake.....	†	87 (b)				†	65			
Warren.....	good	1			0	good	21		3	3
Washington.....										
Watauga.....	very good	2				very good	7			
Wayne.....	good	12			4	good	13			1
Wilkes.....	no change	9				no change	11			
Wilson.....	very good†	10				very good	23			
Yadkin.....		3		1			20		7	
Yancey.....	very good†	1	*	0	1	†	3	*		

* Space exceeds 1,000 cubic feet. † See Summary of Reports from County Superintendents of Health. (a) Includes 1 in House of Correction. (b) Includes 70 in House of Correction.

Mortuary Report for August, 1896.

TOWNS AND REPORTERS.	RACES.	POPULA- TION.		TEMPORARY ANNUAL DEATH RATE PER 1,000.		Typhoid Fever.	Scarlet Fever.	Malarial Fever.	Diphtheria.	Whooping Cough.	Measles.	Pneumonia.	Consumption.	Brain Diseases.	Heart Diseases.	Neu- rotic Diseases.	Diarrheal Diseases.	All Other Diseases.	Accident. Suicide Violence.	TOTAL DEATHS.		Still Born.
		By Races.	Total.	By Races.	Total.															By Races.	By Towns.	
Asheville.....	White.	8,000	12,000	27.0	18.0	—	—	—	—	—	—	—	5	3	1	4	4	1	—	18	0	—
Dr. E. C. Starnes	Colored.	4,000	—	0.0	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	18	—
CHARLOTTE.....	White.	10,855	19,651	18.8	18.3	4	—	—	—	—	—	—	1	1	3	—	4	3	1	17	30	6
C. A. Spratt, H. off'r	Colored.	8,796	—	17.7	—	—	—	—	—	1	—	—	—	—	2	1	1	3	—	13	7	2
Durham.....	White.	4,000	6,000	12.0	10.0	2	—	—	—	—	—	—	4	—	—	—	1	1	—	4	5	3
Dr. J. M. Manning.	Colored.	2,000	—	6.0	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	1	—	—
FAYETTEVILLE.....	White.	3,500	6,000	17.1	26.0	1	—	1	—	—	—	—	—	—	—	—	1	1	—	5	13	2
Dr. J. V. McGougan.	Colored.	2,500	—	34.4	—	1	—	3	—	—	—	—	—	—	1	2	1	—	—	2	6	2
GOLDSBORO.....	White.	3,700	5,400	0.0	11.1	1	—	—	—	—	—	—	—	—	—	—	1	3	—	0	5	—
T. H. Bain, Sec. B. H.	Colored.	1,700	—	35.3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	5	—	1
GREENSBORO.....	White.	5,500	8,000	13.1	24.0	2	—	—	—	—	—	1	—	2	1	—	2	—	—	6	16	1
J. S. Michaux, City Clk	Colored.	2,500	—	48.0	—	—	—	—	—	—	—	—	—	1	—	—	5	—	10	4	—	
HENDERSON.....	White.	2,250	4,250	10.7	16.9	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2	6	—
Dr. W. J. Judd.	Colored.	2,000	—	24.0	—	1	—	—	—	—	—	—	—	1	—	—	2	—	—	4	2	—
HILLSBORO.....	White.	400	700	30.0	34.3	—	—	1	—	—	—	—	—	1	—	—	—	—	—	1	2	—
Dr. D. C. Parris.	Colored.	300	—	40.0	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
JACKSONVILLE.....	White.	150	250	240.0	192.0	—	—	2	—	—	—	—	—	1	—	—	—	—	—	3	4	—
Dr. E. L. Cox.	Colored.	100	—	120.0	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	1	—	—
LENOIR.....	White.	800	1,100	0.0	0.0	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0	0	—
Dr. A. A. Kent.....	Colored.	300	—	0.0	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0	0	—
MARION.....	White.	700	1,000	0.0	12.0	—	—	—	—	—	—	—	1	—	—	—	—	—	—	0	1	—
Dr. Geo. I. White.....	Colored.	300	—	40.0	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—
MONROE.....	White.	1,800	2,400	13.3	10.0	1	—	—	—	—	—	—	—	—	—	—	1	—	—	2	2	—
Dr. J. M. Blair.	Colored.	600	—	0.0	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2	—	—
OXFORD.....	White.	1,500	2,500	32.0	24.0	2	—	—	—	—	—	—	—	—	—	—	1	1	—	4	5	1
Dr. T. L. Booth.....	Colored.	1,000	—	12.0	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—
RALEIGH.....	White.	7,200	13,200	13.3	19.1	4	—	—	—	—	—	—	2	2	—	3	2	—	—	8	21	5
T. P. Sale, Clerk B. H.	Colored.	6,000	—	26.0	—	—	—	—	—	—	—	—	—	1	1	2	3	—	13	21	8	—
ROCKINGHAM.....	White.	1,300	1,750	46.1	34.3	4	—	—	—	—	—	—	—	—	1	—	—	—	—	5	5	—
Dr. W. H. Steele.....	Colored.	450	—	0.0	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
ROCKY MOUNT.....	White.	1,600	2,400	7.5	5.0	1	—	—	—	—	—	—	—	—	—	—	—	—	—	1	1	—
Dr. G. L. Wimberley.	Colored.	800	—	0.0	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
SALEM.....	White.	3,942	4,284	15.2	16.8	—	—	1	—	—	—	—	—	1	—	1	1	1	—	5	6	1
C. S. Hauser H. Officer	Colored.	342	—	35.4	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—
SALISBURY.....	White.	3,500	5,000	10.3	16.8	1	—	—	—	—	—	—	1	—	—	—	1	—	—	3	7	1
Dr. John Whitehead.	Colored.	1,500	—	32.0	—	—	—	—	—	—	—	—	1	1	—	—	2	—	—	4	—	—
SCOTLAND NECK.....	White.	775	1,200	46.4	50.0	—	—	—	—	—	—	—	—	—	—	2	1	—	—	3	5	2
Mayor J. A. Perry.	Colored.	425	—	56.5	—	—	—	—	—	—	—	—	—	—	—	1	1	—	—	2	1	—
SOUTHPORT.....	White.	800	1,300	15.0	18.5	—	—	—	—	—	—	—	—	—	—	—	1	—	—	1	—	—
E. B. Stevens, City Clk.	Colored.	500	—	24.0	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	1	2	—
SPARBORO.....	White.	1,300	2,500	9.2	14.4	—	—	—	—	—	—	—	—	—	—	1	—	1	—	1	3	1
Dr. Donald Williams	Colored.	1,200	—	20.0	—	—	—	—	—	—	—	—	—	—	1	—	1	—	—	2	—	—
WARRENTON.....	White.	1,000	1,500	12.0	8.0	—	—	—	—	—	—	—	—	—	—	—	1	—	—	1	—	—
Dr. G. A. Foote.....	Colored.	500	—	0.0	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0	1	—
WASHINGTON.....	White.	3,000	5,500	16.0	26.2	—	—	—	—	—	—	—	1	—	—	1	1	1	—	4	12	2
Dr. Joshua Tayloe.	Colored.	2,500	—	38.4	—	1	2	—	—	—	—	—	—	—	—	1	3	1	—	—	—	—
WELDON.....	White.	700	1,450	17.1	23.1	—	—	2	—	—	—	—	—	—	—	—	1	—	—	1	4	1
Mayor J. T. Gooch.	Colored.	750	—	48.0	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	3	3	—
VILMINGTON.....	White.	9,000	22,000	22.7	32.7	1	4	—	—	—	—	1	2	—	—	2	7	—	17	60	6	2
Dr. J. C. Shepard.	Colored.	13,000	—	35.1	—	2	16	—	—	—	—	—	4	2	1	3	14	1	43	20	6	—
VILSON.....	White.	2,500	4,500	28.8	21.3	1	1	—	—	—	—	—	—	—	—	—	3	—	—	6	2	—
Dr. N. Anderson.	Colored.	2,000	—	12.0	—	—	—	—	—	—	—	1	—	—	—	—	1	—	—	2	1	—
VINSTON.....	White.	5,200	10,000	9.2	24.0	—	—	2	—	—	—	—	—	—	—	—	2	—	—	4	20	3
Dr. John Bynum.	Colored.	4,800	—	40.0	—	—	—	—	—	—	—	6	—	1	—	5	4	—	16	3	—	—

METEOROLOGICAL SUMMARY FOR NORTH CAROLINA, AUGUST, 1896.

Furnished by the North Carolina Agricultural Experiment Station and Climate and Crop Service.

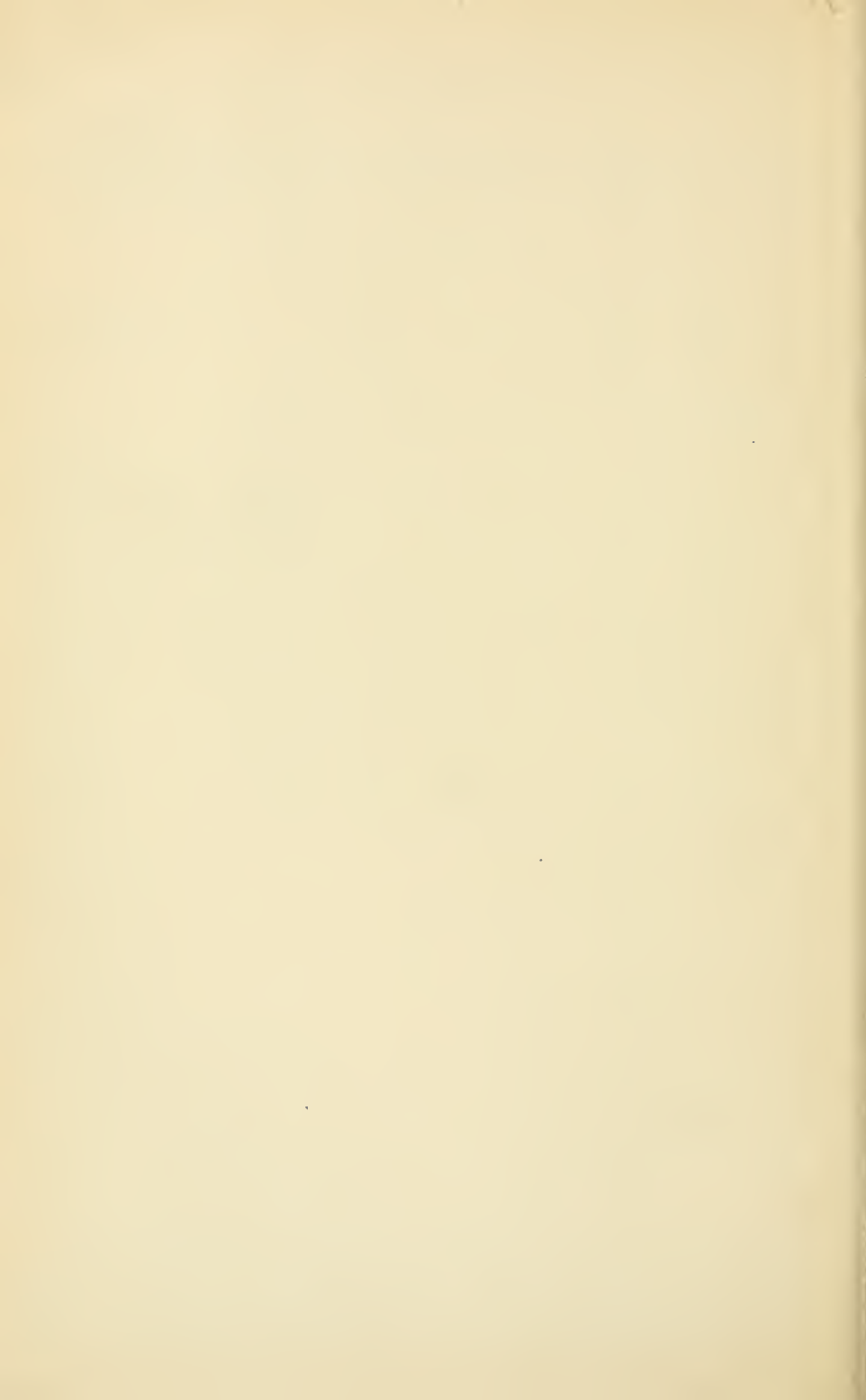
H. B. BATTLE, PH. D., DIRECTOR

C. F. VON HERRMANN, METEOROLOGIST.

STATIONS.	TEMPERATURE, (DEGREES FAHR.)									NO. OF DAYS.				
	Monthly Mean.	Highest.	Date.	Mean Maximum.	Lowest	Date.	Mean Minimum.	Monthly Range.	Mean Daily Range.	Total Precipitation. (in inches)				
											Clear.	Partly Cloudy.	Cloudy.	Rainy.
Asheville.....	76.1	92	12	89.6	51	19	62.6	41	27.0	.....	21	7	3	.....
Beaufort.....	78.6	90	10	84.5	62	20	72.8	28	11.7	1.93	24	3	4	6
Charlotte.....	79.4	99	10	89.7	55	30	69.0	44	20.7	1.05	17	11	3	8
Chapel Hill.....	80.0	102	10	92.2	32	30	67.8	50	24.4	1.28	25	4	1	3
Horse Cove.....	73.9	90	10	84.9	52	30	63.0	38	21.9	1.26	9	19	3	13
Henderson.....	79.6	104	10	91.1	54	29	68.1	50	23.0	1.56	18	11	2	5
Littleton.....	78.3	104	10	90.8	51	30	65.8	53	25.0	3.88	18	6	7	5
Louisburg.....	79.0	103	10	90.3	53	30	67.7	50	22.6	1.27	.....	.....	.....	5
Lenoir.....	74.9	91	12	82.5	55	30	69.0	36	13.5	3.34	21	10	0	6
Monroe.....	78.3	98	10	89.1	49	30	67.5	49	21.6	1.42	23	3	5	3
Morganton.....	77.5	95	9	86.3	59	31	71.7	36	14.6	1.08	.....	.....	.....	5
Mt. Airy.....	74.9	97	10	86.9	46	30	62.7	51	24.2	3.27	7	23	1	5
Moxville.....	79.0	102	10	90.2	54	30	67.8	48	22.4	2.71	7	22	2	11
Newbern.....	80.7	98	11	88.0	62	31	73.4	36	14.6	3.86	.....	.....	.....	7
Oak Ridge.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0.73	26	4	0	4
Pittsboro.....	77.6	96	9	86.8	51	30	68.4	45	18.4	2.66	25	5	1	6
Raleigh.....	78.7	99	10	88.8	56	30	68.6	43	20.2	4.19	13	16	2	8
Roxboro.....	78.2	100	10	91.0	48	29	65.5	52	25.5	0.80	22	5	4	1
Rockingham.....	80.6	103	9	92.0	54	30	69.3	49	22.7	4.42	18	11	2	5
Southport.....	79.2	91	3	86.3	57	30	72.2	31	14.1	2.02	10	15	6	4
Salisbury.....	80.3	102	10	91.3	55	30	69.3	47	22.0	2.14	20	6	5	6
Selma.....	79.6	100	9	84.8	56	19	69.5	44	20.3	1.80	.....	.....	.....	4
Saxon.....	79.2	105	9	92.3	47	30	66.1	58	26.2	1.98	12	16	3	4
Tarboro.....	79.6	105	10	92.8	52	20	66.3	53	26.5	2.09	19	12	0	4
Weldon.....	77.6	101	10	90.0	51	20	65.2	50	24.8	2.14	7	11	3	7
Wilmington.....	79.0	95	9	87.0	59	30	71.1	36	15.9	2.48	14	12	5	7

Summary for August, 1896.

Mean barometer 30.07 inches; normal for August 30.03. Highest barometer 30.30 on the 20th at Raleigh. Lowest barometer 29.89 on the 21st at Kitty Hawk. Mean temperature 77.7 degrees; normal for August 75.8. Highest temperature 105 on the 9th at Saxon; on the 10th at Tarboro; on the 11th at Goldsboro. Lowest temperature 41 on the 30th at Linville. Average rainfall 2.31 inches; normal for August 5.87 inches. Greatest monthly rainfall 5.48 inches at Fair Bluff; least monthly rainfall 0.73 inches at Oak Ridge. Average number of clear days 17; partly cloudy 10; cloudy 4; rainy 6. Prevailing wind direction Southwest. Average hourly velocity 6.6 miles per hour. Normal direction for August, Southwest; normal velocity 6.6 miles per hour.



BULLETIN

OF THE

NORTH CAROLINA BOARD OF HEALTH.

Published Monthly at the Office of the Secretary of the Board, at Raleigh, N. C.

GEO. G. THOMAS, M. D., <i>Pres.</i>	Wilmington.	W. P. BEALL, M. D.,.....	Greensboro.
S. WESTRAY BATTLE, M. D.,.....	Asheville.	W. J. LUMSDEN, M. D.,.....	Elizabeth City.
W. H. HARRELL, M. D.,.....	Williamston.	PROF. F. P. VENABLE,.....	Chapel Hill.
JOHN WHITEHEAD, M. D.,.....	Salisbury.	J. C. CHASE, CIV. ENG.,.....	Wilmington.
RICHARD H. LEWIS, M. D., <i>Secretary and Treasurer</i> , Raleigh.			

VOL. XI.

OCTOBER, 1896.

No. 7.

The Charlotte Health Conference.

This meeting was duly held as announced in the last BULLETIN. With the exception of Dr. Harrell, who was unavoidably detained by serious illness in his family, every member of the board was present. While the attendance was not quite so large as at either the Salisbury or Washington conference, we hardly had a right to expect it in the face of speaking by one of the candidates for Governor of the State, and by one of the candidates for President of the United States, to say nothing of a religious revival that was in progress during both day and night. Those who have had any experience in sanitary matters know very well that people are far less interested in the preservation of their health than they are in either politics or religion. Under the circumstances the attendance was very gratifying in point of numbers and especially so in the representative character of those who came. The following, which was car-

ried out to the letter, was the program in full:

HEALTH CONFERENCE

—AT—

CHARLOTTE, N. C.,

THURSDAY, OCTOBER 15, 1896.

AIMS AND OBJECTS.

The conference is intended to be between the members of the State Board of Health and the people. Its object is to interest the people in sanitary matters by explaining and impressing upon them the great importance to the individual and to the community of a strict observance of the laws of health. Its proceedings will therefore be not technical but popular in character, and every one present will be invited to participate therein, by taking part in the discussions and by asking questions, which the members of the Board will take pleasure in answering to the best of their ability.

As the enforcement of sanitary rules

in the family is largely in the hands of the mistress of the household THE LADIES ARE ESPECIALLY INVITED TO ATTEND.

The conference is intended not only for the people of Charlotte but all living in the section of the State contiguous thereto.

Papers are promised on the following subjects :

THE BOARD OF HEALTH AND THE PUBLIC—THEIR RECIPROCAL RELATIONS—by Dr. Geo. Gillett Thomas, of Wilmington, President of the Board.

THE CAUSE AND PREVENTION OF CERTAIN DISEASES—by Dr. John Whitehead, of Salisbury, member of the Board.

DRINKING WATER AND TYPHOID FEVER—by Prof. F. P. Venable, Ph. D., of the University, member of the Board.

PURIFICATION OF PUBLIC WATER SUPPLIES—by Mr. John C. Chase, of Wilmington, Engineer of the Board.

EFFECTS OF ALCOHOL ON THE HUMAN SYSTEM—by Dr. S. Westray Battle, U. S. N., of Asheville, member of the Board.

THE INSANE POPULATION OF NORTH CAROLINA—CAN THE STATE CARE FOR THEM?—by Dr. P. L. Murphy, Superintendent of the State Hospital at Morganton.

BACTERIA: ILLUSTRATED WITH THE STEREOPTICON—by Passed Assistant Surgeon J. J. Kinyoun, U. S. Marine Hospital Service, of Washington.

INFECTIOUSNESS OF MILK—by Dr. Richard H. Lewis, of Raleigh, Secretary of the Board.

There will be a QUESTION-BOX, and persons in the audience too modest to speak out in meeting can write their questions and deposit them in the

same for answer by some member of the Board.

The meetings will be held in the Y. M. C. A. Hall at 10 A. M., 3 P. M., and 8 P. M.

You are cordially invited to attend and bring your friends.

RICHARD H. LEWIS, M. D.,
Secretary.

The meeting was called to order by Dr. H. M. Wilder, Superintendent of Health of the county, by asking Rev. J. L. Williams to open the proceedings with prayer. As reported by the stenographer employed by the Board, and published in the *Observer* next morning, Dr. Wilder welcomed the visitors in words to this effect :

Gentlemen of the North Carolina State Board of Health :

It affords me pleasure on the part of the citizens of the town to welcome you within our gates. This duty has fallen upon me unexpectedly. Our mayor has been called to New York on a business trip, and this has befallen me very suddenly. I assure you that there will not be a want of interest on our part to listen to your kind teaching upon such laws as will enable our householders and physicians to combat disease. You have come among us, not only as friends, but on a more important mission, that of teaching how disease can be combatted. Gentlemen, I now declare the meeting open.

RESPONSE.

Dr. Geo. Gillett Thomas, President of the Board, who presided over the meeting, responded :

"For the State Board of Health," said he, "I thank you for your kindly welcome to your flourishing town. I would like to say, before submitting

what few remarks I have, that we felt in coming to Charlotte for our conference that no city is as large, thrifty and energetic as Charlotte. We would like to make our presence here as agreeable as possible and make this a working meeting. We have called these meetings conferences. We would like to make them as profitable as possible, and with that end we desire that if there is any point which we can elucidate, you will not hesitate to ask questions.

We are a self-invited body in your midst, carrying out a plan that was inaugurated two years ago of instituting conferences with the citizens of the larger towns and cities of the State upon matters pertaining to the sanitary conditions that must interest all good people. We do not believe that we are any the less welcome because we have asked ourselves into your flourishing community, and we are gratified that you should honor our coming with such an intelligent and interested gathering. The circulars which announce our programme also request that this meeting shall be resolved into a conference in fact, and that it is the wish of the Board that any one of you who desires information on health matters that it is supposed we are in possession of will ask for it, either by direct question or through the question box which has been provided. I wish to ask your attention for the few minutes that are accorded me to a short discussion of the relations of the Board of Health and the people of the State. The fact that doctors not only make a living among you, but that the number of doctors seems to increase is fairly good proof that there is need for preventive as well as curative medicine in

this honorable and ancient borough.

The duties of the sanitary or health officers are so manifold that they involve a knowledge of pathology, because this science implies an exact study of the causes of diseases in their relation to the living human body. A knowledge of vital statistics, involving an accurate account of the population, the births, deaths and diseases, is held necessary for the purpose of enabling proper comparison to be made which would give evidence of the effect of the various conditions on the population. It implies a knowledge of chemistry and the use of the microscope for the purpose of judging of the impurities of air, earth, food and water, and the chemistry is to help in the application of deodorizing and disinfecting agents. It necessitates such knowledge of natural philosophy as will aid in providing for ventilation and atmospheric changes, and for the proper government of such manufacturing processes as are alleged to be hurtful to health. This complex knowledge makes it incumbent on Boards of Health to be provided with physicians, chemists, engineers and men who will devote all the time necessary to laboratory investigation.

The composition of the board demands the presence of several practitioners of medicine, an engineer and a chemist. The law provides for the foundation of county boards of health, to whom is given the authority to elect the superintendent. To him is intrusted the safety of the people whose servant he is. He is made by law the master of the situation when infectious disease or diseases dangerous to the public health appear. He is responsible for the quarantine and disinfection of diseases named in the law,

and if he perform faithfully the part laid out for him, his office is no sine-cure, nor his lot any easy one.

Provision is made in the statutes for the gathering of vital statistics—a most important item, one of value for comparison at the headquarters, and for the information of local health authorities.

The State Board of Health considers itself bound to do all in its power to back the people—to protect them and to provide for their sanitary betterment.

In return, they ask of you citizens of a town that boasts, with justice, of its enterprise, thrift and growth, to see that its laws, and they are the laws of the State, are obeyed.

No town with the reputation of Charlotte can afford to be laggard in the strife for general good.

The above it should be said is only an abstract of President Thomas' paper made by the local editor of the *Observer*.

The feature of the conference, which concluded it, was the address on Bacteria illustrated by stereopticon views, by Passed Assistant Surgeon J. J. Kinyoun. M. H. S. Dr. Kinyoun's high reputation as a truly scientific bacteriologist attracted many physicians from a distance as well as much the largest audience of the meeting. It was extremely interesting and made quite an impression. We are greatly indebted to him, as well as to Surgeon General Wyman for granting our request that he be permitted to come.

At the business meeting of the Board the Secretary stated that several of the municipal water supplies in the State were reported by the bacteriologist analyzing them for the Board to be in some instances infected with

intestinal bacilli and in others suspicious. He was ordered to have made immediately another examination both bacteriological and chemical of those waters and if they were still bad to notify the Superintendent of Health, the Mayor and the Manager of the water works of the fact and call upon them in the interests of the public health to have the trouble remedied. The Secretary was further ordered, if the Board did not receive within 30 days, satisfactory assurances that this had been done, to have published in the local papers a copy of the analysis for the information of the people using the water. The wisdom of the Board in taking this action cannot of course, be disputed and we hope that it will be instrumental in insuring safe water to our people.

Summary of Reports from County Superintendents of Health, for September, 1896, Seventy-seven counties reporting).

In the blanks on which these reports are made the following items are called for:

1. The number of cases of small-pox, measles, whooping cough, scarlatina, diphtheria, typhoid fever, pernicious malarial fever, hemorrhagic malarial fever, yellow fever and cholera which have occurred in the county during the past month.
2. The diseases which have been prevalent in the county, and in what parts.
3. Epidemics among domestic animals.
4. Remarks as to special unsanitary conditions in the county.

In few counties do physicians generally report these details to the Superintendent, though furnished with blanks for that purpose, and in most

cases he has to depend upon himself alone in making his report.

Details as to the jails, houses of correction, and county homes are also given in these reports and will be found tabulated on other pages.

ALAMANCE—Dr. R. A. Freeman, Burlington. No diseases reported.

ALEXANDER—Dr. T. F. Stevenson, Taylorsville. One case of typhoid fever.

ALLEGHANY—Dr. Robt. Thompson, Sparta. Diphtheria (11) in the eastern and southwestern and typhoid fever (2) in the northern parts. Cholera in fowls.

ANSON—Dr. E. S. Ashe, Wadesboro. No report.

ASHE—Dr. L. C. Gentry, Crumpler. Typhoid fever (5) not so prevalent as formerly. Hog cholera in central part.

BEAUFORT—Dr. Joshua Tayloe, Washington. No diseases reported.

BERTIE—Dr. H. V. Dunstan, Windsor. One case of typhoid fever and four of hemorrhagic malarial fever. Other malarial diseases in all parts.

BLADEN—Dr. Newton Robinson, Elizabethtown. Intermittent and remittent fever in some parts.

BRUNSWICK—Dr. D. I. Watson, Southport. No diseases reported.

BUNCOMBE—Dr. E. C. Starnes, Asheville. Some typhoid fever.

BURKE—Dr. J. L. Laxton, Morganton. Four cases of typhoid fever. Some diarrhoea.

CABARRUS—Dr. Robert S. Young, Concord. Two cases of diphtheria, eight of typhoid and one of hemorrhagic malarial fever. Typhoid and malarial fevers in all parts.

CALDWELL—Dr. A. A. Kent, Lenoir. Fifty cases of whooping cough, now abating, a few of scarlatina in the northern part and 12 of typhoid fever.

CAMDEN—No Board of Health.

CARTERET—Dr. George N. Ennett, Beaufort. Three cases of typhoid fever; malarial fever, diarrhoea and dysentery. The jail is rather dilapidated, though the upper floor, occupied by the prisoners, is fairly well kept. There is rather too much rubbish stored in the lower cells.

CASWELL—Dr. W. O. Spencer, Yanceyville. Several cases of typhoid fever. Malarial fever in all parts. The jail is in bad condition, the heating arrangement very bad.

Dr. Spencer has been appointed to fill the unexpired term, the vacancy having been caused by a misunderstanding between the commissioners and himself.

CATAWBA—Dr. D. McD. Yount, Newton. Five cases of typhoid fever, two of pernicious and one of hemorrhagic malarial fever. Malarial fevers in all parts.

CHATHAM—No report.

CHEROKEE—Dr. J. F. Abernathy, Murphy. No diseases to report.

CHOWAN—Dr. R. H. Winborne, Rockyhook. A few cases of typhoid fever in every township. Intermittent and remittent fevers, diarrhoea and dysentery in all parts. Cholera among swine nearly everywhere. More stringent legislation to prevent diseased hogs from running at large is imperatively needed. At least one-half of the meat hogs of this township have already been destroyed, the disease is still prevailing and no steps are being taken to arrest its progress.

CLAY—Dr. W. E. Sanderson, Hayesville. Four cases of typhoid fever.

CLEVELAND—Dr. O. P. Gardner, Shelby. No diseases to report.

COLUMBUS—Dr. I. Jackson, Whiteville. Five cases of typhoid fever. Malarial fever to a greater extent than usual. I hear of very little hog cholera as compared with former years.

CRAVEN—Dr. J. W. Duguid, Newbern. No report.

CUMBERLAND—Dr. J. Vance McGougan, Fayetteville. One case of typhoid fever.

CURRITUCK—No Board of Health.

DARE—Dr. W. B. Fearing, Manteo. No diseases reported.

DAVIDSON—Dr. John Thames, Lexington. Five cases of diphtheria, three of typhoid fever and one of hemorrhagic malarial fever. Malarial fevers in all parts.

DAVIE—Dr. James McGuire, Mocksville. One case of diphtheria and two of hemorrhagic malarial fever. Other malarial fevers in all parts.

DUPLIN—Dr. J. C. Grady, Magnolia. Four cases of whooping cough and six of typhoid fever.

DURHAM—Dr. John M. Manning, Durham. Catarrhal and malarial fevers in some parts.

EDGEcombe—Dr. Donald Williams, Tarboro. Malarial fevers in all parts.

FORSYTH—Dr. E. F. Strickland, Bethania. Much malaria; typhoid fever and diphtheria in some parts.

FRANKLIN—Dr. E. S. Foster, Louisville. Typhoid fever in some parts.

GATES—No Board of Health.

GASTON—Dr. J. H. Jenkins, Dallas. Still malarial fever, but less than last month. A few cases of typhoid fever.

GRAHAM—No Board of Health.

GRANVILLE—Dr. T. L. Booth, Oxford. Five cases of typhoid fever. Malarial and "continued fevers" in every part.

GREENE—Dr. Joseph E. Grimsley, Snow Hill. Malarial fever in all parts.

GUILFORD—Dr. W. J. Richardson, Greensboro. Pneumonia, bronchial troubles and malarial fever in all parts.

HALIFAX—Dr. I. E. Green, Weldon. Two cases of typhoid fever and two of hemorrhagic malarial fevers. Other malarial fevers in nearly all parts.

HARNETT—No Board of Health.

HAYWOOD—Dr. J. Howell Way, Waynesville. A few cases of whooping cough and of typhoid fever. Seventy-one cases of diphtheria in upper Pigeon valley and 22 deaths, 19 cases in Waynesville township with 6 deaths. Waynesville town has one case of scarlatina, no diphtheria.

HENDERSON—No Board of Health.

HERTFORD—Dr. John W. Tayloe, Union. Thirteen cases of scarlatina and 3 of hemorrhagic malarial fever. Intermittent and remittent fevers in nearly all parts. Some hog cholera.

HYDE—No Board of Health.

IREDELL—Dr. W. J. Hill, Statesville. Typhoid and malarial fevers and bronchial troubles. The sanitary condition of the public institutions is as good as the buildings will permit.

JACKSON—Dr. W. F. Tompkins, Webster. Four cases of typhoid fever.

JOHNSTON—Dr. R. J. Noble, Selma. Two cases of typhoid fever.

JONES—No Board of Health.

LENOIR—Dr. James M. Parrott, Kinston. Malarial fever and bronchitis in all parts.

LINCOLN—Dr. Thos. F. Costner, Lin-

colnton. Five cases of whooping cough and one of typhoid fever. Intermittent and remittent fevers in all parts. The County Commissioners will in a short time complete the laying of pipes for a system of water supply for the jail.

MCDOWELL—Dr. Geo. I. White, Marion. A few cases of typhoid fever in the southwestern part.

MACON—Dr. S. H. Lyle, Franklin. No report.

MADISON—Dr. Jas. K. Hardwicke, Marshall. No report.

MARTIN—Dr. W. H. Harrell, Williamston. No epidemic diseases or typhoid fever.

MECKLENBURG—Dr. H. M. Wilder, Charlotte. Eight cases of scarlatina, 10 of diphtheria and 6 of typhoid fever. Chills and fever in nearly every part. The sanitary condition of both creeks, one on the east and one on the west side of Charlotte, is in a miserable condition owing to the scarcity of water to flush out the sewerage that empties into them.

MITCHELL—Dr. C. E. Smith, Bakersville. Five cases of typhoid fever.

MONTGOMERY—Dr. W. A. Simmons, Troy. The county is remarkably healthy for this time of the year.

MOORE—Dr. Gilbert McLeod, Carthage. No report.

NASH—Dr. J. J. Mann, Nashville. No report.

NEW HANOVER—Dr. J. C. Shepard, Wilmington. Ten cases of typhoid fever, 1 of pernicious, and 2 of hemorrhagic malarial fever. Other malarial diseases in all parts.

NORTHAMPTON—Dr. H. W. Lewis, Jackson. Four cases of diphtheria, 10

typhoid and 8 of hemorrhagic malarial fever. Malarial diseases in all parts.

ONslow—Dr. E. L. Cox, Jacksonville. Two cases of typhoid and one of hemorrhagic malarial fever. A great deal of malarial fever. A few cases of hog cholera in our section.

ORANGE—Dr. D. C. Parris, Hillsboro. A few cases of whooping cough, two of scarlatina and four of typhoid fever. Very hot dry weather and low water in ponds and streams have developed much malarial miasm. The result is many cases of chills and fever.

PAMLICO—No Board of Health.

PASQUOTANK—Dr. J. E. Wood, Elizabeth City. Two cases of typhoid fever and one of pernicious malarial fever. Other malarial fevers in all parts.

PENDER—Dr. Geo. F. Lucas, Currie. Malarial fevers in all parts.

PERQUIMANS—Dr. J. W. Speight, Winfall. Two cases of whooping cough, three of diphtheria, nine of typhoid fever and three of pernicious malarial fever.

PERSON—Dr. J. A. Wise, Roxboro. Very little sickness.

PITT—Dr. Frank W. Brown, Greenville. A good many cases of typhoid fever heard of, none reported. Two cases of hemorrhagic malarial fever. Other malarial diseases. The grand jury last week reported the public buildings to be in the best condition ever seen.

POLK—Dr. C. J. Kenworthy, Tryon. No diseases reported. Physicians do not report to the superintendent.

RANDOLPH—Dr. T. T. Ferree, Ashboro. Seven cases of typhoid fever. Some bronchial troubles.

RICHMOND—Dr. W. H. Steele, Rockingham. A few cases of typhoid fever.

ROBESON—Dr. T. A. Norment, Jr., Lumberton. No diseases reported. As in most instances physicians do not report their cases.

ROCKINGHAM—Dr. D. W. Courts has resigned his office and removed to Princeton, N. C.

ROWAN—Dr. John Whitehead, Salisbury. Two cases of whooping cough and seven of typhoid fever. Malarial fever in all parts.

RUTHERFORD—Dr. E. B. Harris, Rutherfordton. Dysentery in some parts. The county buildings are in bad shape, but are kept in as good condition as possible.

SAMPSON—Dr. Jno. A. Stevens, Clinton. Typhoid and malarial fevers and whooping cough. Hog cholera.

STANLY—Dr. D. P. Whitley, Millington. Typhoid (25) and malarial fever in all parts. Mumps epidemic around Millington. Quite an amount of continued fever of an irregular type.

STOKES—Dr. W. L. McCanless, Danbury. Two cases of typhoid fever.

SURRY—Dr. John R. Woltz, Dobson. Eight cases of diphtheria and twenty-two typhoid fever. There is temporary overcrowding of the jail, owing to the pressure of eight United States prisoners.

SWAIN—Dr. A. M. Bennett, Bryson City. A few cases of typhoid fever.

TRANSYLVANIA—Dr. M. M. King, Brevard. One case of typhoid fever.

TYRRELL—Dr. B. W. Cohn, Columbia. No report.

UNION—Dr. J. E. Ashcraft, Monroe. Typhoid and malarial fevers still pre-

vailing. Some catarrhal fever among children.

VANCE—Dr. J. H. Tucker, Henderson. Some whooping cough. Remittent, intermittent, continued and a few cases of typhoid fever in many parts.

WAKE—Dr. P. E. Hines, Raleigh. Nine cases of whooping cough, three of diphtheria, one of scarlatina and twenty of typhoid fever. Malarial fever in parts of the county heard from. Nine replies from twenty-eight blanks sent out.

WARREN—Dr. Geo. A. Foote, Warrenton. Many cases of bilious fever of mild type. A disease, probably anthrax, among cattle. There are no special sanitary conditions in the county, except the overflow of numerous creeks, which cannot be prevented. The jail internally is all right, but its external surroundings are uninteresting and not attractive.

WASHINGTON—No Board of Health.

WATAUGA—Dr. W. B. Councill, Boone. Scarlatina (5) and diphtheria in the western and southern parts. In the eastern part of the county, including a portion of Wilkes, some typhoid fever has prevailed for more than a year.

WAYNE—Dr. W. J. Jones, Jr., Goldsboro. One case of scarlatina and two of typhoid fever. Malarial troubles in all parts.

WILKES—Dr. J. M. Turner, Wilkesboro. Some typhoid, also some malarial fevers contracted in other counties. We never have it to originate here. The sanitary condition of the County Home and jail could be improved considerably.

WILSON—Dr. N. Anderson, Wilson. No diseases reported.

YADKIN—Dr. T. R. Harding, Yadkinsville. Typhoid fever in nearly all parts. Some mild cases of diphtheria and sore throat. Along the big creeks and around one mill pond the sanitary condition is bad and has caused a great deal of chills and fever.

YANCEY—Dr. J. L. Ray, Burnsville. A few cases of scarlet fever and of typhoid fever.

Review of Diseases for September 1896.

BOWEL DISEASES*—From Burke, Carteret and Chowan.

BROCHITIS—From Guilford, Iredell Lenoir.

CHOLERA IN CHICKENS—From Alleghany.

CHOLERA IN HOGS—From Ashe, Chowan, Columbus, Hertford, Onslow, and Sampson.

DIPHTHERIA—From Alleghany, Cabarrus, Davidson, Davie, Forsyth, Franklin, Haywood, Mecklenburg, Northampton, Perquimans, Surry, Wake, Watauga and Yadkin (14 counties.)

DYSENTERY—From Carteret, Chowan, and Rutherford.

MALARIAL FEVER—From Bertie, Bladen, Cabarrus, Carteret, Caswell, Catawba, Columbus, Davidson, Davie, Durham, Edgecombe, Forsyth, Franklin, Gaston, Granville Green, Guilford, Halifax, Hertford, Iredell, Lenoir, Mecklenburg, New Hanover, Northampton, Onslow, Orange, Pasquotank, Pender, Pitt, Rowan, Sampson, Stanly, Union, Vance, Wake, Warren, Wayne and Wilkes. (38 counties.)

MALARIAL FEVER, HEMORRHAGIC—From Bertie, Cabarrus, Catawba, Davidson, Halifax, Hertford, New Hanover, Northampton, Onslow and Pitt. (10 counties.)

MALARIAL FEVER, PERNICIOUS—From Catawba, New Hanover and Perquimans.

MUMPS—From Stanly.

SCARLATINA—From Caldwell, Hertford, Mecklenburg, Orange, Wake, Watauga, Wayne and Yancey. (8 counties.)

TYPHOID FEVER—From Alexander, Alleghany, Ashe, Bertie, Buncombe, Burke, Cabarrus, Caldwell, Carteret, Caswell, Catawba, Chowan, Clay, Columbus, Cumberland, Davidson, Duplin, Forsyth, Franklin, Gaston, Granville, Halifax, Haywood, Iredell, Jackson, Johnston, Lincoln, McDowell, Mecklenburg, Mitchell, New Hanover, Northampton, Onslow, Orange, Pasquotank, Perquimans, Pitt, Randolph, Richmond, Rowan, Sampson, Stanly, Stokes, Surry, Swain, Transylvania, Union, Vance, Wake, Watauga, Wayne, Wilkes, Yadkin and Yancey. (54 counties.)

WHOOPIING COUGH—From Caldwell, Duplin, Haywood, Lincoln, Orange, Perquimans, Rowan, Sampson, Vance and Wake. (10 counties.)

* Cholera infantum, cholera morbus and dysentery, when mentioned by reporters, are given separate headings.

Summary of Mortuary Reports for September, 1896. (Twenty-six towns.)

	White.	Col'd.	Total.
Aggregate population.....	84,272	60,463	144,735
Aggregate deaths.....	81	98	179
Representing annual death rate per 1000.....	11.5	19.4	14.8

Causes of Death.

Typhoid Fever.....	8	11	19
Malarial Fever.....	2	9	11
Diphtheria.....	4	1	5
Whooping Cough.....	1	2	3
Pneumonia.....	2	1	3
Consumption.....	5	15	20
Brain diseases.....	10	4	14
Heart diseases.....	6	4	10
Neurotic diseases.....	4	0	4
Diarrhoeal diseases.....	12	9	21
All other diseases.....	24	41	65
Accident.....	3	1	4
	81	98	179
Deaths under 5 years.....	21	33	55
Still-born.....	8	15	23

Condition of Jails and County Homes by Counties for September, 1896.

COUNTIES.	JAIL.					HOME.				
	General Sanitary Condition.	Number Prisoners confined.	Space allotted each, (in cubic feet.)	Number giving evidence of successful vaccination.	Number who can read and write.	General Sanitary Condition.	Number inmates.	Space allotted each, (in cubic feet.)	Number giving evidence of successful vaccination.	Number who can read and write.
Alamance.....	no change	14 (a)	.....	.....	.....	.....	30	.....	.....	.....
Alexander.....	good	0	.....	.....	.....	good	7	.....	.....	2
Alleghany.....	.....	2	.....	.....	.....	.....	11	.....	.....	.....
Anson.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Ashe.....	.....	6	650	.....	2	.....	9	465	.....	3
Beaufort.....	.....	11	.....	.....	.....	.....	13	.....	.....	.....
Bertie.....	very good	11 (b)	.....	.....	6	very good	15	.....	3	4
Bladen.....	good	0	.....	.....	.....	good	6	.....	.....	.....
Brunswick.....	no change	2	*	0	0	no change	14	700	0	0
Buncombe.....	no change	88 (c)	*	18	53	no change	35	*	19	15
Burke.....	no change	7	.....	.....	.....	no change	17	.....	.....	.....
Cabarrus.....	.....	33 (d)	*	1	14	.....	26	*	7	10
Caldwell.....	.....	4	*	0	4	.....	3	*	1	2
Camden.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Carteret.....	+	2	800	1	1	.....	0	.....	.....	.....
Caswell.....	+	2	.....	.....	.....	fair	27	.....	.....	.....
Catawba.....	.....	4	*	0	2	.....	35	*	15	12
Chatham.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Cherokee.....	good	6	.....	.....	.....	good	4	.....	.....	.....
Chowan.....	good	20	*	.....	.....	good	5	*	2	0
Clay.....	.....	3	.....	.....	.....	.....	0	.....	.....	.....
Cleveland.....	very good	12	1,000	.....	9	very good	23	900	.....	4
Columbus.....	good	15	*	.....	7	good	11	*	.....	0
Craven.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Cumberland.....	.....	9	.....	.....	.....	.....	24	.....	.....	.....
Currituck.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Dare.....	.....	1	.....	.....	.....	.....	0	.....	.....	.....
Davidson.....	good	2	.....	.....	.....	good	28	.....	3	.....
Davie.....	no change	4	.....	2	3	no change	9	.....	2	0
Duplin.....	better	0	.....	.....	.....	better	15	450	.....	.....
Durham.....	good	31 (e)	*(f)	.....	.....	good	18	*	.....	.....
Edgecombe.....	fair	10	*	2	3	fair	23	*	1	2
Forsyth.....	fair	22	1,000	3	6	fair	23	*	6	7

* Space exceeds 1,000 cubic feet. + See Summary of Reports from County Superintendents of Health. (a) Includes 9 in House of Correction. (b) Includes 10 in House of Correction. (c) Includes 80 in House of Correction. (d) Includes 24 in House of Correction. (e) Includes 25 in House of Correction. (f) For House of Correction, 347.

Condition of Jails and County Homes by Counties.—CONTINUED.

COUNTIES.	JAIL.					HOME.				
	General Sanitary Condition.	Number Prisoners confined.	Space allotted each. (in cubic feet.)	Number giving evidence of successful vaccination.	Number who can read and write.	General Sanitary Condition.	Number inmates.	Space allotted each. (in cubic feet.)	Number giving evidence of successful vaccination.	Number who can read and write.
Franklin	no change	†	*			no change	27	*		
Gaston	good					good				
Gates										
Graham										
Granville	good	10		1	7	good	28			
Greene	good	1	600	0	0	good	6	1,000	4	2
Guilford	very bad	49 (a)				good	41			
Halifax		15		1	5		41		5	6
Harnett										
Haywood	excellent	6				excellent	2			
Henderson										
Hertford	no change	5	*	0	1	no change	11	*	1	2
Hyde										
Iredell	no change					no change				
Jackson		8	900	3	5		3			1
Johnston		2	1,000		2		14	1,000		0
Jones										
Lenoir	no change	5					0			
Lincoln	+	5	*	0	2	good	22	600	13	7
McDowell										
Macon										
Madison										
Martin	good	3		1	1	good	13		4	5
Mecklenburg	fair	129 (b)				fair	59	*		
Mitchell	not good	10				good	4			
Montgomery	very good	9	500			very good	17	500		
Moore										
Nash										
New Hanover	very good	36 (c)	500	10	30	very good	27	*	24	10
Northampton		4	1,000	1	2		32	1,000	9	8
Onslow		5					5			
Orange	not good	2	500	0	8	good	23	1,000	0	16
Pamlico										

* Space exceeds 1,000 cubic feet. † See Summary of Reports from County Superintendents of Health. (a) Includes 33 in House of Correction. (b) Includes 94 in House of Correction. (c) Includes 14 in House of Correction.

Condition of Jails and County Homes by Counties.—CONTINUED.

COUNTIES.	JAIL.					HOME.				
	General Sanitary Condition.	Number Prisoners confined.	Space allotted each. (In cubic feet.)	Number giving evidence of successful vaccination.	Number who can read and write.	General Sanitary Condition.	Number inmates.	Space allotted each. (In cubic feet.)	Number giving evidence of successful vaccination.	Number who can read and write.
Pasquotank.....		5	*	0	2		24	*	0	0
Pender.....	fair	0				fair	5		0	0
Perquimans.....	good	0				good	6		0	3
Person.....	good	0				good	9		9	2
Pitt.....	+	6	*		1	+	27	*		2
Polk.....	good	2	*	0	1		0			
Randolph.....	no change	4			2	no change	32			6
Richmond.....	fair	16	950	0	10	fair	20	*	0	4
Robeson.....	good	8				good	12			
Rockingham.....										
Rowan.....			500	5	3		18	500	15	5
Rutherford.....	bad +	3				+	17			
Sampson.....	good	2				good	20			
Stanly.....	good	1	*	0	2	good	9	*	0	1
Stokes.....	good	6	600	2	1	good	13	600	4	3
Surry.....		15 (a)	+				21		1	3
Swain.....	good	5				good	5			
Transylvania.....	fair	2	*	0	1	fair	5	*	0	1
Tyrrell.....										
Union.....	good	4				good	28			
Vance.....	very good	8	*	1	2	very good	14	*	2	2
Wake.....	good	70 (b)				good	62			
Warren.....	+	1					24		3	3
Washington.....										
Watauga.....	good	5				good	7			
Wayne.....	good	16			3	good	14			3
Wilkes.....	fair	2				fair	11			
Wilson.....	excellent	13			2	excellent	17		1	2
Yadkin.....	fair	3	1,000	0	1	good	20	1,000	0	7
Yancey.....	very good	1				no change	3			

* Space exceeds 1,000 cubic feet. + See Summary of Reports from County Superintendents of Health. (a) Includes 1 in House of Correction. (b) Includes 52 in House of Correction.

Mortuary Report for September, 1896.

TOWNS AND REPORTERS.	RACES.	POPULA- TION.		TEMPORARY ANNUAL DEATH RATE PER 1,000.		Typhoid Fever.	Scarlet Fever.	Malarial Fever.	Diphtheria.	Whooping Cough.	Measles.	Pneumonia.	Consumption.	Brain Diseases.	Heart Diseases.	Nervous Diseases.	Diarrheal Diseases.	All Other Diseases.	Accident.	Suicide.	Violence.	Total By Races. By Towns.	Deaths under 5 years. Still Born.
		By Races.	Total.	By Races.	Total.																		
Asheville.....	White.	8,000		3.0								1	1					1				3	
Dr. E. C. Starnes	Colored.	4,000	12,000	3.0	3.0																	1	
CHARLOTTE	White.	10,855		18.8				3				1	1	3	1	4	3					17	9
C. A. Spratt, H. Off'r	Colored.	8,796	19,651	13.6	16.5	1		1				1	1	1	1			5				10	5
Durham.....	White.	4,000		15.0					1				1	1								5	1
Dr. J. M. Manning.	Colored.	2,000	6,000	6.0	12.0			1														1	
FAYETTEVILLE	White.	3,500		13.7		1								1	1	1						4	1
Dr. J. V. McGougan.	Colored.	2,500	6,000	0.0	8.0																	0	1
GOLDSBORO	White.	3,700		9.7				1							1		1					3	1
T. H. Bain, Sec. B. H.	Colored.	1,700	5,400	14.1	11.1													2				2	1
GREENSBORO	White.	5,500		0.0																		0	
J. S. Michaux, City Clk	Colored.	2,500	8,000	24.0	7.5	3												2				5	
HENDERSON	White.	2,250		5.3		1																1	
Dr. W. J. Judd.	Colored.	2,000	4,250	12.0	8.5				1				1									2	1
HILLSBORO	White.	400		0.0																		0	
Dr. D. C. Parris.	Colored.	300	700	40.0	17.1									1								1	1
JACKSONVILLE	White.	150		0.0																		0	
Dr. E. L. Cox.	Colored.	100	250	0.0	0.0																	0	
LENOIR	White.	800		0.0																		0	
Dr. A. A. Kent.	Colored.	300	1,100	0.0	0.0																	0	
MONROE	White.	1,800		6.7													1					1	
Dr. J. M. Blair.	Colored.	600	2,400	20.0	15.0							1					1					2	3
OXFORD	White.	1,500		8.0		1																1	
Dr. T. L. Booth.	Colored.	1,000	2,500	0.0	4.8																	6	
RALEIGH	White.	7,200		18.3				1				1	1		1	2	5					11	5
T. P. Sale, Clerk B. H.	Colored.	6,000	13,200	16.0	17.3			1					1	1			5					8	4
ROCKINGHAM	White.	1,700		9.2													1					0	
Dr. W. H. Steele.	Colored.	450	1,750	0.0	6.8																	1	
ROCKY MOUNT	White.	1,600		0.0																		0	
Dr. G. L. Wimberley.	Colored.	800	2,400	15.0	5.0			1														1	
SALEM	White.	3,942		6.1										1			1					2	
S. C. Butner Act Mayr	Colored.	342	4,284	35.1	8.4												1					1	3
SALISBURY	White.	3,500		17.1		1								1								5	
Dr. John Whitehead.	Colored.	1,500	5,000	8.0	14.4									1								1	6
SCOTLAND NECK	White.	775		15.5										1								1	
Mayor J. A. Perry.	Colored.	425	1,200	0.0	10.0																	0	
SOUTHPORT	White.	800		0.0																		0	
E. B. Stevens, City Clk.	Colored.	400	1,200	30.0	10.0												1					1	1
TARBORO	White.	1,300		18.5		1																2	1
Dr. Donald Williams	Colored.	1,200	2,500	0.0	9.6												1					0	
WARRENTON	White.	1,000		0.0																		0	
Geo. Harper H. Off'r	Colored.	500	1,500	0.0	0.0																	0	
WASHINGTON	White.	3,000		20.0								1					4					5	1
Dr. Joshua Tayloe.	Colored.	2,500	5,500	38.4	28.4	2	1										1	4				8	4
WELDON	White.	700		0.0																		0	
Mayor J. T. Gooch.	Colored.	750	1,450	32.0	16.5	1											1					2	1
WILMINGTON	White.	9,000		18.7		2	1						3				4	3	1			14	3
Dr. J. C. Shepard.	Colored.	13,000	22,000	29.5	25.1	2	5					5	1	2			3	13	1			32	13
WILSON	White.	2,500		4.8										1								1	1
Dr. N. Anderson.	Colored.	2,000	4,500	18.0	10.7			1									1					3	1
WINSTON	White.	5,200		11.5		1						1					1	1	1			5	2
Dr. John Bynum.	Colored.	4,800	10,000	42.5	26.4	2						5	1				3	6				17	4

N. B. The reporters for the cities and towns printed in bold faced type have signed this certificate: I hereby certify that this report gives the whole number of deaths occurring within the corporate limits during the above month.

METEOROLOGICAL SUMMARY FOR NORTH CAROLINA, SEPT., 1896.

Furnished by the North Carolina Section of the Weather Bureau Climate and Crop Service.

C. F. VON HERRMANN, DIRECTOR.

STATIONS.	TEMPERATURE. (DEGREES FAHR.)									NO. OF DAYS.					
	Monthly Mean.	Highest.	Date.	Mean Maximum.	Lowest	Date.	Mean Minimum.	Monthly Range.	Mean Daily Range.	Total Precipitation. (in inches)	Clear.	Partly Cloudy.	Cloudy.	Rainy.	Prevailing Wind.
Asheville.....	66.6	93	18	79.8	35	24	53.5	58	25.3	3.87	16	13	1	9	N
Beaufort.....	74.7	88	13	82.2	50	24	67.2	38	15.0	5.44	16	5	9	7	N E
Charlotte.....	72.6	99	18	83.3	47	24	62.0	52	21.3	4.69	19	10	1	7	N E
Chapel Hill.....	71.6	99	18	83.6	40	24	59.7	59	23.9	8.39	20	4	6	7	S W
Horse Cove.....	67.3	88	18	77.9	37	23	56.8	51	21.1	4.02	15	10	5	7	S E
Henderson.....	71.8	101	18	82.5	42	24	61.0	59	21.5	3.42	13	9	8	11	N
Littleton.....	69.2	95	18	80.2	39	24	58.1	56	22.1	5.93	14	6	10	8	S W
Louisburg.....	71.2	100	18	82.1	38	24	60.3	62	21.8	3.15	.....	.....	.....	4	.....
Lenoir.....	66.7	86	18	76.4	42	24	56.0	44	20.4	5.74	14	8	8	7	N E
Monroe.....	73.0	100	18	85.1	37	24	60.9	63	24.2	3.10	22	3	5	3	N E
Morganton.....	68.9	97	18	77.1	45	24	63.7	52	13.4	7.44	.....	.....	.....	9	.....
Mt. Airy.....	67.2	93	18	79.1	34	24	55.4	59	23.7	7.91	8	7	15	8	S W
Mocksville.....	71.6	97	18	83.2	42	24	60.0	55	23.2	5.09	11	17	2	8	N E
Newbern.....	74.2	92	19	81.6	48	24	66.7	44	14.9	4.37	.....	.....	.....	8	.....
Oak Ridge.....	69.0	95	18	80.0	39	24	58.1	56	21.9	9.57	22	3	5	8	E
Pittsboro.....	69.9	95	18	80.8	38	24	59.0	57	21.8	6.15	24	2	4	7	N E
Raleigh.....	71.8	98	18	82.0	43	24	61.6	55	20.4	3.78	14	10	6	8	N
Roxboro.....	69.9	98	18	82.9	36	24	56.9	62	26.0	5.79	.....	.....	.....	7	.....
Rockingham.....	75.0	100	18	87.4	42	24	62.7	58	24.7	6.36	19	7	4	5	E
Southport.....	75.4	91	18	84.3	45	24	66.6	46	17.7	2.99	11	15	4	5	E
Salisbury.....	71.6	99	18	83.8	41	25	59.5	58	24.3	5.63	.....	.....	.....	9	S W
Selma.....	71.2	101	18	83.1	39	24	61.4	62	21.7	1.80	.....	.....	.....	3	.....
Saxon.....	70.6	99	18	82.6	35	24	58.6	64	24.0	8.80	12	9	8	9	S W
Tarboro.....	71.9	101	18	85.1	36	24	58.6	65	26.5	6.20	15	11	4	7	E
Weldon.....	69.4	96	18	81.2	37	24	57.7	59	23.5	6.48	12	8	10	9	S
Wilmington.....	74.2	94	18	83.0	45	24	65.4	49	17.6	3.10	21	6	3	7	S W

Summary for September, 1896.

Mean barometer 30.06 inches; normal for September 30.08. Highest barometer 30.42 on the 24th at Raleigh. Lowest barometer 29.50 on the 29th at Raleigh. Mean temperature 70.3 degrees; normal for September 70.3. Highest temperature 102 on the 18th at Southern Pines. Lowest temperature 30 on the 24th at Linville. Average rainfall 5.31 inches; normal for September 4.54 inches. Greatest monthly rainfall 9.57 inches at Oak Ridge; least monthly rainfall 1.80 at Selma. Average number of clear days 16; partly cloudy 8; cloudy 6; rainy 7. Prevailing wind direction Northeast. Average hourly velocity 6.4 miles per hour. Normal direction for September, Northeast; normal velocity 7.0 miles per hour.



BULLETIN

OF THE

NORTH CAROLINA BOARD OF HEALTH.

Published Monthly at the Office of the Secretary of the Board, at Raleigh, N. C.

GEO. G. THOMAS, M. D., *Pres.*,.....Wilmington.
 S. WESTRAY BATTLE, M. D.,.....Asheville.
 W. H. HARRELL, M. D.,.....Williamston.
 JOHN WHITEHEAD, M. D.,.....Salisbury.

W. P. BEALL, M. D.,.....Greensboro.
 W. J. LUMSDEN, M. D.,.....Elizabeth City.
 PROF. F. P. VENABLE,.....Chapel Hill.
 J. C. CHASE, CIV. ENG.,.....Wilmington.

RICHARD H. LEWIS, M. D., *Secretary and Treasurer*, Raleigh.

VOL. XI.

NOVEMBER, 1896.

No. 8.

Care of the Insane.

It gives us pleasure to print, in obedience to the instructions of the Board, the subjoined excellent and practical paper prepared by Dr. Murphy, the able Superintendent of the State Hospital at Morganton, at the request of the Board for the recent Health Conference at Charlotte. We commend it to the careful consideration of the reader.

In the nature of the case it is simply impossible for the counties to properly care for the insane, no matter how desirous those in authority may be to do so. As a result it often happens that not as much as could be is done for those poor unfortunates, who are excluded from the asylum for want of room, and there have been exceptional instances of cold-blooded cruelty in their treatment, the recital of which would make the reader's blood boil with righteous indignation.

The cottage plan, in connection with our already established State institutions, under the immediate care of the trained experts in charge of them, strikes us as being eminently wise,

practical and economical. These poor, afflicted ones must be cared for in some way, and why not give them the best care, when it can be done at no greater expense than at present, if as much? It would make no difference to the taxpayer whether his money was disbursed by the State or county treasurer, and it would be a great relief to the county authorities to be rid of these difficult charges.

We sincerely hope that the incoming legislature will give this important matter the attention it unquestionably deserves.

NORTH CAROLINA'S INSANE.**Can the State Care for Them?**

By P. L. Murphy, M. D., Superintendent of the State Hospital at Morganton. (Read at the Charlotte Health Conference.)

Statistics are said to be unreliable. This is true of the insane population of North Carolina as will be seen, and yet there is no other way to arrive at any conclusion upon which to base an opinion. The census of 1880 shows the population of North Carolina to have

been 1,399,750. The number of insane were 2,028, or one insane person to every 690.2 of inhabitants. In 1890 the population was 1,617,947. The number of insane were 1,725, or a small fraction less than one insane person to every 938 of inhabitants. If these figures are true we have a fast-decreasing insane population in this State.

Are they true? is a question of the greatest interest to us. I greatly fear not. For reasons which do not concern us now, great doubts are entertained of the correctness of many of the census returns. A sample of this is found in the report of the Board of Charities of the State of Illinois for the year 1873. The Chairman of the Board, Mr. Wines, shows in this report that the number of insane in Illinois was 3,005 instead of 1,625 as returned by the census enumerators. He, besides this glaring error, discovered on the lists returned to the Superintendent, Gen. A. F. Walker, 123 names counted twice.

Further comparisons will be made, taking the census reports as a basis, to show that it is more than probable that there is less insanity in North Carolina than in the general population of the United States. We have seen that the proportion in North Carolina was in 1880 one lunatic to every 690. In the United States, taken as a whole, it was one to every 545. In order to obtain correct information upon which I could base some reasonable conclusions, a circular letter was sent to the Superintendent of Health, to the Chairman of the Board of County Commissioners, to the Clerk of the Superior Court in every county in the State, enclosing a form for reply and a stamped envelope. Replies were received from 22 of the 44 counties of the Eastern district and 37 of the 52

counties of the Western district. Having made such a complete failure in collecting information on this subject from all over the State, I have decided to limit myself to the white insane of the Western Hospital district, for the reason that I am more familiar with the white insane of this territory, having had opportunities to gather information of large numbers outside the walls of the hospital at Morganton. Even with these opportunities the statistics collected are incomplete, but surely true as far as they go, certainly representing the minimum of the white insane in Western North Carolina.

From the 1st of August, 1895, to the 1st of August, 1896, 113 males, 158 females, total 271 persons, were legally committed to the hospital; of this number 77 males, 98 females, total 175, were admitted; 25 males and 44 females were for various reasons refused admission; 11 males, 27 females, total 38, were ordered admitted, but their friends declined to send them. Of the number refused admission 12 males and 3 females were either idiots or dotards, and manifestly from our laws, surely under the existing circumstances, were not proper subjects for hospital care; 16 males, 41 females, total 57, would have been admitted had room been abundant. Almost all the males and a few of the females who were refused admission were epileptics. Many of these women actually need hospital treatment; a few, with all the men refused, only custodial care. I learned from the several replies received in answer to the circulars that in addition to the above there are 31 men and 44 women in the 37 counties heard from. Assuming these 72 persons to be proper subjects for the hospital, we find 47 men and 82 women, a total

of 129 persons outside the hospital who should have either its treatment or its care. At the time of writing this paper there were 692 patients in the hospital, a total of 821 in the district, whose names can be called. This does not include the persons whose applications were made previous to August, 1895. Some of these are yet at home, and others for whom commitment papers have not been made are known to be waiting for hospital care as soon as room can be had for them. It can be safely estimated that there are now not less than 250 white insane persons in this district not in the hospital, the large majority of whom should be under its care. By calculating the Western district as two-thirds of the State, the whole of the white insane can be estimated near enough for our purposes. Taking the highest figures of all these estimates, our State falls far below any other civilized country known in the number of its insane. It will, I am sure, be of general interest to pursue this subject farther and to quote from various writers.

Mr. F. B. Sanborn says "that in Massachusetts in the last thirty years the population has doubled while the number of insane has trebled." The editor of the *American Journal of Insanity*, in referring to a discussion on the subject of the increase of insanity, says: "So uniform is the story that has come for years past from every civilized country that a person who abides by facts, be they pleasant or unpleasant, rather than by cheerful theories, has no choice but to believe that insanity is increasing at a rate quite out of proportion to the rate of increase of population."

It is not universally conceded that insanity is so rapidly increasing as it appears from the increasing demand

for hospital care. Without going into that any further, it is some comfort to know that perhaps after all it is not as bad as it appears. It is an unquestioned fact that with the better care lunatics receive now they live longer than formerly, that in many countries more accurate enumeration is made, and that this, at least, accounts for part of the apparent increase. Your attention is drawn to the fact that from both sources of information, to-wit: the number who sought room in the hospital, and from those reported in reply to the circular letter, more women demand room than men. This, notwithstanding that there are 40 more women in the hospital. This is so noticeable, and, besides being interesting, is so important, that I venture to give more detailed facts. From the opening of the hospital at Morganton to the end of the last fiscal year, December 1, 1895, 1,833 patients have been admitted, 894 men and 934 women. The census for 1890 shows perhaps a larger relative population of insane women in the State, viz.: 755 men to 960 women. There are some 20,000 more females than males in the State, but this does not account for the large difference.

Regis in his book, "Practical Manual of Mental Medicine," says in general statistics of insanity that the male sex figures more largely than the female. The proportion is 114 to 129 males to each 100 females. This includes cretinism and idiocy, which are more frequent in males. If these are excluded, which is done in the above statistics of North Carolina, a certain equilibrium is re-established. "If we go further," says he, "and take out all the cases of general paralysis and alcoholism, we find that pure insanity is more frequent

in the female than in the male." Other authorities claim that the proportion becoming insane is practically the same. This, perhaps, includes alcoholism and general paralysis, both of which are rare in North Carolina. There are other reasons why the number of insane women is greater, even admitting the same number are attacked, and there are reasons, too, why more seek hospital care. Society demands protection for women, who by disease have been deprived of the in-born instincts which guard them against vicious and lewd men. This is best accomplished by sequestration. By reason, too, of their physical organization women need better protection from the vicissitudes of life. Prof. Alonzo Clark, in his lectures to his classes, always repeated this proverb, which he had originated, 'A man and a dog can live afield; but a woman and a cat must have a home.'

Many men really insane are competent to make a support for themselves and sometimes for their families, whereas women are an additional burden. The chiefest of all reasons is, however, that more insane men die and more recover than women.

The statistics in the hospital at Morganton for twelve years show that of the 894 men admitted 356 recovered nearly 40 per cent. and 149 died, 16.6 per cent. Of 939 women, 363 recovered, nearly 39 per cent., the exact difference is 1.1; and 149 died, 15.8 per cent., something less than a difference of 1 per cent. This apparent trifling difference shows larger in large numbers and is a consideration. Whatever the causes may be is immaterial to our present purpose. It is a fact that there is a greater demand for

admission of women in the Western North Carolina Hospital district.

Having shown, if indeed it needed further demonstration, that there are a large number of insane people in North Carolina that need hospital and asylum room, it remains to show how this can be supplied, the best means to provide for them, and after that the cheapest. The limits of this paper will not permit a thorough discussion of all the phases of this important question. I must, therefore, assume many of these to be settled, or, at all events, it is the experience of those who have given them the most serious study.

The state of New York in the late sixties or early seventies made a new departure by establishing an asylum for the chronic insane at Willard.

After 10 or 15 years of trial the experiment was pronounced a failure by its previously warmest advocates. The next trial was in Pennsylvania, at Wernersville, on a new plan. It was proposed to profit by the mistakes of New York, and the advocates of the Wernersville plan were sanguine that at last the great problem was solved. So far it has not been the success its friends hoped for. However that may be, North Carolina is not in a condition to make costly experiments, and that project will be dismissed as not feasible. County care ought to be summarily disposed of by saying it has been tried and found wanting in every state and in every country, but it has some advocates in this State, and perhaps a short space should be devoted to it to show its undesirability, its cruelty to the helpless insane and how utterly at variance it is with the spirit of the age and the humane feelings of

our best people. It is not necessary to go outside our State to find examples of cruelties and barbarity worthy only of the darkest age, and yet our people are not cruel or parsimonious to the extent of allowing cruelties and barbarities practiced on the helpless insane, nor are they indifferent to the sufferings of these afflicted people. It is rather because the great mass of our citizens are not aware of the real state of things, or are unable to correct this great wrong.

Every one who has looked into this question, and who desires the best care of the insane, believes that the State ought to assume charge of them. The counties will not, indeed cannot, care for them, asylums (limiting the meaning of that word to institutions for chronics, which it means) have proved unwise and have been discontinued almost everywhere. There remain three other systems, the boarding-out or Scotch system and the colonization near present hospitals and the separation of the criminal and very dangerous insane from the innocent and comparatively harmless.

We may dismiss the first in a few words. Only mild lunatics can thus be cared for, and then there would be little or no economy in this. The plan has been tried in Massachusetts in a limited way, probably as many as 100 out of 7,500 being cared for in this manner. In as sparsely a settled State as North Carolina, it would be almost impossible to have State supervision, which is essential to properly carry out the plan. The colony plan and the establishment of an institution for criminals in the penitentiary I believe are the only ones that can be adopted in this State that will afford the relief desired and yet be within the means of

our people. "Prodigality," says Dr. Wise, of New York, "in expenditure of tax funds for eleemosynary purposes is not only a wrong principle but its reaction upon political and public sentiment retards and injures the object we are seeking to effect, as the history of provision for the insane in several States clearly illustrates."

It is to the interest of the insane themselves that those whose duty it is to try to provide for them should studiously avoid any waste of the means our tax payers are willing to give for this purpose. This idea will be kept constantly in view in the recommendations to be made. I must ask again that some axioms mentioned be accepted as true. They are not my opinions alone, but the combined wisdom of those physicians who have spent their lives in hospitals for the insane. It is impracticable now to build another institution in North Carolina. The insane must be provided for, then, by the present institutions. There should be one acre of land belonging to the hospital for every patient cared for. It is not possible without a greater outlay of money than can be afforded to buy sufficient land contiguous to that owned by the hospitals, but land not further away than five miles (the nearer the better) may be bought cheap enough. On these outlying farms colonies for both men and women can be established in not expensive cottages, and farming and other operations can be carried on just as is now done at the central institution. One of the great expenses connected with the hospitals for the insane is the necessary officers to conduct the business of the establishment. There will be no need for another

superintendent, steward, matron, engineer, farmer, etc., it being easy to conduct these colonies under the management of the central institution, the expensive administration building, barns, store room—a very costly part of every hospital—having been already provided.

The criminal insane will be disposed of before going further into the colony system. Several of the States have had for years separate institutions for criminals. The persons confined in these represent three classes: Penitentiary convicts who become insane while serving terms in the State prisons, persons who are tried for crimes, who are found to be insane at the trial, or to have been insane when the criminal deed was committed, and those well-recognized lunatics who commit deeds of great violence while in the hospitals or at large. The penitentiary of North Carolina is ample enough as it is now used to easily and cheaply care for all criminal insane. There is no need to employ any other officer or to erect any other building. The present hospitals would get rid of a dangerous class of lunatics, who are a menace to the whole house, and thus lose to a greater extent the prison idea of the hospital, a condition desired beyond measure. There are 26 criminals now in the State Hospital, and they occupy the most valuable and the most needed room in the institution. If the judgment of the court was confinement in the asylum for criminals for life, we would hear less of the plea of insanity in murder trials.

In order to properly understand the comparative cheapness of the colony system, a full knowledge of the cost of the present institution should be had. The cost of the hospital at Morganton

before the additions of congregate dining rooms and cottages was about \$900 per bed, or \$900 for every patient accommodated. The one at Raleigh was about the same, the one at Goldsboro about \$500 per bed. Throughout the United States the average is even larger than this; perhaps \$1,200 per bed would not be an exaggeration.

The trial of cottages near the present building at Morganton has been made at a cost of something less than \$200 per bed. There was practically no cost for water, and very little for plumbing or disposition of sewage in this. I believe, including the cost of land, and if water is convenient, cottages for 400 to 1,000 patients can be erected for \$250 per bed, or even less. If the State would adopt this plan systematically and, say, appropriate small sums yearly, the work could be done for even less than \$250 per bed. A large cost of building is the brick, and by establishing a yard with brick-making machinery, the cost of brick could be reduced to nearly one-half our present prices.

Much, if not all, of the work of making brick, and the excavating, can be done by the male patients and thus still further reduce the cost. The advantages do not stop with the erection of the cottages in less costly way than has heretofore been followed in this State. The Pennsylvania Lunacy Commission, in advocating the establishment of an asylum for chronics at Wernersville, claimed for it the advantage that the patients would make it nearly self sustaining, because the quiet working patients would be taken from all the hospitals in the State and sent to Wernersville. In short, none but producers would be sent there. The commission did not seem to consider

that the other hospitals would lose by being deprived of their working patients, and that quiet, working patients are subject to attacks of violent excitement. It is a fact, I am told by one who knows, that such is really the case. The management of the older institutions is hampered by having their organized working parties broken up. There is a constant going of quiet patients from the hospitals to Wernersville and of greatly excited ones back to their respective institutions. This is not only inconvenient, but expensive. In the cottage plan proposed these transfers could be made without cost and without interrupting in any way the ordinary everyday workings of the organization. At one time it was customary at Morganton to send home the so-called harmless and incurable to make room for acute cases, and those who were violent and dangerous. This is not now resorted to if it is possible to avoid it. It is only a question of degree: every insane person may with reason be called dangerous. During the month of September last a so-called harmless lunatic in North Carolina made a desperate effort to wreck a train. A harmless lunatic who left Morganton hospital went home and killed one of her children within a month.

The cottage plan has been tried to a greater extent at Kalamazoo, Michigan, than in any other institution in the United States known to the writer. A letter addressed to its accomplished superintendent, Dr. Wm. M. Edwards, asking for information as to this system, elicited this reply: "As long ago as 1886 the board of trustees of this asylum, (Kalamazoo,) failing to secure land contiguous to the location of the main buildings, purchased a

farm of 176 acres two miles and a half distant. Afterwards 80 acres were added, making the present size 256 acres. On this was built a wooden house and a large barn, and we began the experiment of producing our own milk. We now have 56 cows there, largely Holstein grades. Forty-seven male patients, of the chronic, laboring class, live there. The farm is under the supervision of a man and his wife, and with the help of two other men and two other women, all the work of caring for the patients, cooking for them, attending to all these cows and to the farm and garden work, there being several acres of the latter, is done by this help and the patients before mentioned. This experiment proved so successful that a year later the trustees bought another farm of 357 acres. On that there are now four brick houses and 250 patients; 67 men and 183 women reside there. There is a resident physician who superintends the whole of the "colony," as it is called. As the patients are mostly of the class before mentioned, there is not a very great deal of active medical work. There are, however, frequent calls for a physician, the maintenance of discipline and other matters, incident to the care of so many persons, which keep the doctor busy during the whole time. Patients living in the cottages assist with the ordinary housework; cooking is done within each cottage, and on the whole living is more satisfactory than within the main building. The patients, as a rule, improve in general health by being transferred to the cottages; the out door life that most of them lead renders them more robust, and there is greater contentment than in the larger institutions. We find, also, that maintenance is cheaper in the

cottages, but I attribute this largely to the fact that the class of patients there would be more easily maintained wherever they are located than the more actively disturbed and destructive chronic cases. Among the drawbacks to our plan is the fact that we possess two farms instead of one, the distance away two miles and a half, and the fact that we are obliged to cart supplies from the main institution. We shall probably not in the immediate future enlarge the colony unless we are able to construct an electric railway between our main asylum and that, in which event other cottages would probably be erected to make room for the growth of our district."

The hospital at Morganton is full to overflowing. I believe the female department is the worst crowded institution in the country. The insane women of our district are knocking at our doors in vain. The directors have by rare economy and thrift saved a small amount of money with which they are erecting a building for women. Even when this is finished the demand for room will not have been supplied. The institution at Raleigh is also building room for a hundred or more. The one at Goldsboro has just finished a large addition, sufficient at least for some time to come, which is a wise and proper policy, for the sick negro has no home, and is a charge upon the county. The State has furnished her colored insane with accommodation; should she do less for her white people?

The Board of Health deserves the hearty thanks of the friends of the insane everywhere for using all its power to further their material interest. The work the board gave me has been a work of love, for no one knows better the suffering these unfortunate and

helpless people undergo and no one would labor harder to relieve them.

Gentlemen, my task is done in the best manner I could in the time allotted me. Let us all hope that, imperfect as it is, it will draw public attention to these afflicted and suffering human beings and that relief will speedily follow.

The Serum Diagnosis Test for Typhoid Fever.

In our September issue we referred to this interesting method of making the diagnosis in cases of enteric fever. Since it appeared we have received a communication from Dr. Richard H. Whitehead, the head of the Medical Department of the State University, offering to make this test free of charge for any physician in the State who will send him a drop of the dried blood of a suspected case, and who will agree to keep and transmit to him a clinical record thereof. Those desiring to have the test made will, having washed the same, take from the lobule of the ear or the fingers a drop or two of blood on a piece of clean glass or non-absorbent writing paper, and having allowed it to dry mail it, with stamp for reply, to Dr. Whitehead at Chapel Hill. We trust the sender will not fail in the matter of the clinical history of the case, as Dr. Whitehead has promised us to report results to the next conjoint session of the Board with the State Medical Society.

Summary of Reports from County Superintendents of Health, for October, 1896, (Seventy-nine counties reporting).

In the blanks on which these reports are made the following items are called for:

1. The number of cases of small-pox,

measles, whooping cough, scarlatina, diphtheria, typhoid fever, pernicious malarial fever, hemorrhagic malarial fever, yellow fever and cholera which have occurred in the county during the past month.

2. The diseases which have been prevalent in the county, and in what parts.

3. Epidemics among domestic animals.

4. Remarks as to special unsanitary conditions in the county.

In few counties do physicians generally report these details to the Superintendent, though furnished with blanks for that purpose, and in most cases he has to depend upon himself alone in making his report.

Details as to the jails, houses of correction, and county homes are also given in these reports and will be found tabulated on other pages.

ALAMANCE—Dr. R. A. Freeman, Burlington. Typhoid fever in some parts.

ALEXANDER—Dr. T. F. Stevenson, Taylorsville. Two cases of typhoid fever.

ALLEGHANY—Dr. Robt. Thompson, Three cases of scarlatina and one of typhoid fever. Scarlatina in the middle part. Some pneumonia.

ANSON—Dr. E. S. Ashe, Wadesboro. No report.

ASHE—Dr. L. C. Gentry, Crumpler. Two cases of diphtheria. Typhoid fever almost epidemic in the north-western part.

BEAUFORT—Dr. Joshua Tayloe, Washington. One case of typhoid fever.

BERTIE—Dr. H. V. Dunstan, Windsor. Two cases of typhoid fever and

one of hemorrhagic malarial fever. Malarial diseases. An epidemic of hog cholera.

BLADEN—Dr. Newton Robinson, Elizabethtown. Little sickness of any kind.

BRUNSWICK—Dr. D. I. Watson, Southport. No report.

BUNCOMBE—Dr. E. C. Starnes, Asheville. A number of cases of scarlatina and a few of typhoid fever.

BURKE—Dr. J. L. Laxton, Morganton. Three cases of typhoid fever.

CABARRUS—Dr. Robert S. Young, Concord. Three cases of diphtheria and four of typhoid fever.

CALDWELL—Dr. A. A. Kent, Lenoir. One hundred cases of whooping cough and six of typhoid fever. An epidemic of influenza of mild form.

CAMDEN—No Board of Health.

CARTERET—Dr. George N. Ennett, Beaufort. One case of typhoid fever and a few of malarial fever. There has been some improvement in the way of removing rubbish from the first floor of the jail. The court-house and jail both need repairs.

CASWELL—Dr. W. O. Spencer, Yanceyville. Several cases of typhoid fever and some malarial fever. The jail is in a bad condition, especially in regard to the heating arrangement.

CATAWBA—Dr. D. McD. Yount, Newton. Five cases of typhoid fever, two of pernicious and one of hemorrhagic malarial fever. Other malarial diseases in all parts.

CHATHAM—No Board of Health.

CHEROKEE—Dr. J. F. Abernathy, Murphy. No disease to report. An epidemic of hog cholera in one section. The water supply to the jail is unsuffi-

cient, except for drinking purposes, owing to drought.

CHOWAN—Dr. R. H. Winborne, Rockyhook. One case of hemorrhagic malarial fever. Intermittent and remittent fevers of mild type in all parts. Hog cholera in all parts. The county home has been much improved in the last two years. The jail has been made more comfortable in winter.

CLAY—Dr. W. E. Sanderson, Hayesville. Ten cases of whooping cough and one of typhoid fever. On account of the construction of the jail it is impossible to render its sanitation good. A new one is badly needed.

CLEVELAND—Dr. O. P. Gardner, Shelby. No diseases to report.

COLUMBUS—Dr. I. Jackson, Whiteville. Three cases of typhoid fever. Hog cholera has nearly disappeared.

Craven—Dr. J. W. Duguid, Newbern. No report.

CUMBERLAND—Dr. J. Vance McGowan, Fayetteville. No diseases reported.

CURRITUCK—No Board of Health.

DARE—Dr. W. B. Fearing, Manteo. Three cases of typhoid fever. The jail is kept in as good condition as the building will allow.

DAVIDSON—Dr. John Thames, Lexington. Four cases of whooping cough, two of diphtheria and four of typhoid fever. Malarial diseases in all parts.

DAVIE—Dr. James McGuire, Mocksville. Two cases of hemorrhagic malarial fever. Malarial and bronchial troubles in all parts.

DUPLIN—Dr. J. C. Grady, Magnolia. Eight cases of typhoid fever. Typhoid and malarial fevers in all parts. An epidemic of hog cholera.

DURHAM—Dr. John M. Manning, Dur-

ham. Three cases of typhoid fever. Very little sickness.

EDGEcombe—Dr. Donald Williams, Tarboro. Malarial diseases in all parts. Two cases of hemorrhagic fever.

FORSYTH—Dr. E. F. Strickland, Bethania. Diphtheria, typhoid and malarial fevers in some parts.

FRANKLIN—Dr. E. S. Foster, Louisburg. Typhoid fever in many parts. The condition of the jail is as good as can be with the present construction of the building. I am doing all I can for improvements.

GATES—No Board of Health.

GASTON—Dr. J. H. Jenkins, Dallas. A few cases of typhoid fever and one of pneumonia. Chills and fever common on Big Long creek.

GRAHAM—No Board of Health.

GRANVILLE—Dr. T. L. Booth, Oxford. Two cases of typhoid fever. Malarial fevers in most parts.

GREENE—Dr. Joseph E. Grimsley, Snow Hill. Two cases of typhoid fever. Intermittent sickness in some parts. Very little sickness.

GUILFORD—Dr. W. J. Richardson, Greensboro. Four cases of typhoid fever. Malarial, bronchial and bowel troubles.

HALIFAX—Dr. I. E. Green, Weldon. County generally healthy. Malarial fever in some parts.

HARNETT—No Board of Health.

HAYWOOD—Dr. J. Howell Way, Waynesville. Four cases of typhoid fever. Twenty-seven cases of diphtheria on upper Pigeon river. Early in the epidemic I held a public meeting with the citizens of that section, addressing them with special reference to sanitation in connection with diphtheria;

committees were organized and provided with funds. This I believe has helped to stamp out the disease in that section, there being no new cases for the past three weeks.

HENDERSON—No Board of Health.

HERTFORD—Dr. John W. Tayloe, Union. Two cases of hemorrhagic malarial fever. Bilious fever in some parts.

HYDE—No Board of Health.

IREDELL—Dr. W. J. Hill, Statesville. Scarlet, typhoid and malarial fevers.

JACKSON—Dr. W. F. Tompkins, Webster. Two cases of typhoid fever.

(Since this report was received we have been pained to learn of the death of Dr. Tompkins, on the 14th inst. (Nov.), of pneumonia.)

JOHNSTON—Dr. R. J. Noble, Selma. No diseases reported.

JONES—No Board of Health.

LENOIR—Dr. James M. Parrott, Kinston. One case of scarlatina and one of hemorrhagic malarial fever. Malarial fever and bronchitis in all parts.

LINCOLN—Dr. Thos. F. Costner, Lincolnton. Three cases of whooping cough. Malarial troubles in all parts. The jail is now supplied with water by a ram.

MCDOWELL—Dr. Geo. I. White, Marion. A few cases of typhoid fever and whooping cough.

MACON—Dr. S. H. Lyle, Franklin. Six cases of whooping cough and five of typhoid fever. The new jail does as well as could be expected, but does not have accommodations for the number of prisoners commonly confined there.

MADISON—Dr. Jas. K. Hardwicke, Marshall. Four cases of typhoid fever.

Some parts of this town have suffered from bad water from shallow wells near stables and privies.

MARTIN—Dr. W. H. Harrell, Williamston. Four cases of hemorrhagic malarial fever. Other malarial fevers in all parts.

MECKLENBURG—Dr. H. M. Wilder, Charlotte. Two cases of scarlatina, sixteen of diphtheria and five of typhoid fever. We have been bordering upon an epidemic of diphtheria, but at this writing (Nov. 12) I am of the opinion that the disease is abating. There is an effort on foot by the board of aldermen to prevent making tilings and brick within a mile of the city of Charlotte.

MITCHELL—Dr. C. E. Smith, Bakersville. Six cases of typhoid fever. I had four in one family of eight persons. I had the others to drink boiled water and no new cases developed.

MONTGOMERY—Dr. W. A. Simmons, Troy. Five cases of typhoid fever and a few of malarial fever.

MOORE—Dr. Gilbert McLeod, Carthage. No report.

NASH—Dr. J. J. Mann, Nashville. Very little sickness of any kind.

NEW HANOVER—Dr. J. C. Shepard, Wilmington. One case of whooping cough, 3 of scarlatina, 1 of diphtheria, 8 of typhoid fever, 2 of pernicious and 3 of hemorrhagic malarial fever. Other malarial fevers in all parts.

NORTHAMPTON—Dr. H. W. Lewis, Jackson. Two cases of scarlatina, 3 of diphtheria, 6 of typhoid fever, 1 of pernicious and 10 of hemorrhagic malarial fever. Malarial sickness in all parts. Sanitary condition of the county is very unsatisfactory.

ONslow—Dr. E. L. Cox, Jacksonville. Very little sickness. A few cases of malarial fever.

ORANGE—Dr. D. C. Parris, Hillsboro. Some whooping cough, six cases of typhoid fever and one of hemorrhagic malarial fever. Other malarial fever in all parts.

PAMLICO—No Board of Health.

PASQUOTANK—Dr. J. E. Wood, Elizabeth City. Two cases of typhoid fever. Catarrhal and malarial fevers in all parts.

PENDER—Dr. Geo. F. Lucas, Currie. Five cases of typhoid fever. Gastric malarial fevers in all parts.

PERQUIMANS—Dr. J. W. Speight, Winfall. Two cases of measles, two of whooping cough and one of typhoid fever.

PERSON—Dr. J. A. Wise, Roxboro. Measles in the eastern part. The sanitary condition of the jail should be improved some.

PITT—Dr. Frank W. Brown, Greenville. Four cases of typhoid fever and two of hemorrhagic malarial fever. Malarial diseases in most parts. The sanitary condition of the county is as good as or better than ever before.

POLK—Dr. C. J. Kenworthy, Tryon. No diseases reported. The jail needs repairs and I will call the attention of the county commissioners to it at their next meeting.

RANDOLPH—Dr. T. T. Ferree, Ashboro. Health of county good.

RICHMOND—Dr. W. H. Steele, Rockingham. Several cases of scarlatina and three of typhoid fever.

ROBEESON—Dr. T. A. Norment, Jr., Lumberton. Some typhoid fever. One case of hemorrhagic malarial fever.

ROCKINGHAM—No report.

ROWAN—Dr. John Whitehead, Salisbury. Ten cases of whooping cough, one of diphtheria, six of typhoid fever and one of pernicious malarial fever. Other malarial fevers in all parts.

RUTHERFORD—Dr. E. B. Harris, Rutherfordton. Some typhoid fever.

SAMPSON—Dr. Jno. A. Stevens, Clinton. A few cases of whooping cough, typhoid and malarial fevers. Hog cholera.

STANLY—Dr. D. P. Whitley, Millingport. Mumps around the town. Two cases of typhoid and some malarial fever.

STOKES—Dr. W. L. McCanless, Danbury. No diseases to report.

SURRY—Dr. John R. Woltz, Dobson. Two cases of typhoid fever.

SWAIN—Dr. A. M. Bennett, Bryson City. Pharyngitis and tonsillitis in all parts. Some whooping cough.

TRANSYLVANIA—Dr. M. M. King, Brevard. Some pneumonia.

TYRRELL—Dr. B. W. Cohn, Columbia. No report.

UNION—Dr. J. E. Ashcraft, Union. Some typhoid and malarial fevers.

VANCE—Dr. J. H. Tucker, Henderson. Whooping cough. A few cases of typhoid and malarial fevers throughout the county.

WAKE—Dr. P. E. Hines, Raleigh. Three cases of typhoid fever and one each of whooping cough, scarlatina and diphtheria. Malarial fever in those parts from which reports were received. Health of county unusually good. I sent out twenty-eight postal cards requesting reports and I have received only five replies.

WARREN—Dr. Geo. A. Foote, Warrenton. Twenty cases of whooping cough, very mild.

WASHINGTON—No Board of Health.

WATAUGA—Dr. W. B. Councill, Boone. Typhoid fever in all parts. In one township, in the eastern part of the county, there occurred twenty cases, most of them of a very malignant type. A strange feature of the cases was that it commenced in a valley down a creek, and the disease traveled up the stream to a high point of the Blue Ridge. Now, what does the germ theory say about the disease traveling up stream and against the west wind?

WAYNE—Dr. W. J. Jones, Jr., Goldsboro. One case of scarlatina. Slight malarial troubles.

WILKES.—Dr. J. M. Turner, Wilkesboro. La grippe and typhoid fever.

WILSON.—Dr. N. Anderson, Wilson. One case of hemorrhagic malarial fever.

YADKIN.—Dr. T. R. Harding, Yadkinville. Diphtheria and typhoid fever in nearly all parts.

YANCEY.—Dr. J. L. Ray, Burnsville. One case of scarlatina and one of typhoid fever. The county home is kept about as always, never as clean as it should be. The jail is kept as well as it well can be under the circumstances.

Review of Diseases for October, 1896.

BRONCHITIS.—From Davie and Guilford.

CHOLERA in Hogs.—From Bertie, Cherokee, Chowan, Columbus, Duplin and Sampson.

DIPHTHERIA.—From Ashe, Cabarrus, Davidson, Forsyth, Haywood, Mecklenburg, New Hanover, Northampton, Rowan, Wake and Yadkin—11 counties.

INFLUENZA.—From Caldwell and Wilkes.

MALARIAL FEVER.—From Bertie, Carteret, Caswell, Catawba, Davidson, Davie, Duplin, Edgecombe, Forsyth, Gaston, Granville, Green, Guilford, Halifax, Hertford, Iredell, Lenoir, Lincoln, Martin, Montgomery, New Hanover, Northampton, Onslow, Orange, Pasquotank, Pender, Pitt, Robeson, Rowan, Sampson, Stanly, Union, Vance, Wake, Wayne and Wilson—36 counties.

MALARIAL FEVERS, HEMORRHAGIC. From Bertie, Catawba, Chowan, Davie, Edgecombe, Hertford, Lenoir, Martin, New Hanover, Northampton, Orange, Pitt, Robeson and Wilson—14 counties.

MALARIAL FEVER, PERNICIOUS.—From Catawba, New Hanover, Northampton and Rowan.

MEASLES.—From Perquimans.

MUMPS.—From Stanly.

PNEUMONIA. — Alleghany, Gaston, and Transylvania.

SCARLATINA. — From Alleghany, Buncombe, Iredell, Lenoir, Mecklenburg, New Hanover, Northampton, Richmond, Wake, Wayne and Yancey—11 counties.

TYPHOID FEVER.—From Alamance, Alexander, Alleghany, Ashe, Beaufort, Bertie, Buncombe, Burke, Cabarrus, Caldwell, Carteret, Caswell, Catawba, Clay, Columbus, Dare, Davidson, Dolphin, Durham, Forsyth, Franklin, Gaston, Granville, Greene, Guilford, Haywood, Iredell, Jackson, McDowell, Macon, Madison, Mecklenburg, Mitchell, Montgomery, New Hanover, Northampton, Orange, Pasquotank, Pender, Pitt, Richmond, Robeson, Rowan, Rutherford, Sampson, Stanly, Surry, Union, Vance, Wake, Watauga, Wilkes, Yadkin and Yancey—54 counties.

WHOOPIING COUGH. — From Caldwell, Clay, Davidson, Lincoln, McDowell, Macon, New Hanover, Orange, Rowan, Sampson, Swain, Vance, Wake and Warren—14 counties.

Summary of Mortuary Reports for October, 1896. (Twenty-six towns.)

	White.	Col'd.	Total.
Aggregate population.....	84,372	60,463	144,735
Aggregate deaths.....	95	128	222
Representing annual death rate per 1000.....	13.5	25.4	18.4
<i>Causes of Death.</i>			
Typhoid Fever.....	10	9	19
Malarial Fever.....	4	11	15
Diphtheria.....	4	0	4
Whooping Cough.....	0	2	2
Pneumonia.....	2	8	10
Consumption.....	11	18	29
Brain diseases.....	11	7	18
Heart diseases.....	9	7	16
Neurotic diseases.....	2	0	2
Diarrhœal diseases.....	16	12	28
All other diseases.....	24	50	74
Accident.....	2	3	5
	95	128	222
Deaths under 5 years.....	21	37	58
Still-born.....	7	10	17

Condition of Jails and County Homes by Counties for October, 1896.

COUNTIES.	JAIL.					HOME.				
	General Sanitary Condition.	Number Prisoners confined.	Space allotted each. (In cubic feet.)	Number giving evidence of successful vaccination.	Number who can read and write.	General Sanitary Condition.	Number inmates.	Space allotted each. (In cubic feet.)	Number giving evidence of successful vaccination.	Number who can read and write.
Alamance.....		16 (a)					33			
Alexander	very good	1				very good	8			
Alleghany....	fair	4				fair	9			
Anson										
Ashe.....	fair	6				fair	9			
Beaufort	very good	14				very good	12			
Bertie.....		10 (b)		2	4		14		3	3
Bladen	fair	1				fair	7			
Brunswick ..										
Buncombe		61 (c)	734	13	57		41	*	19	16
Burke.....	no change	7				no change	16			
Cabarrus		34 (d)	*	0	17		26	*	12	11
Caldwell.....	no change	4	*	0	3	no change	4	*	1	2
Camden										
Carteret.....	†	0					0			
Caswell.....	†	2				fair	28			
Catawba		3	*	1	1		39	*	12	14
Chatham										
Cherokee.....	fine †	5				fine	4			
Chowan	good †	7	*			good †	5	*	0	0
Clay.....		3					0			
Cleveland... very good		20	1,000		9	very good	23	900		5
Columbus ...	good	15	*			good	10	*		
Craven										
Cumberland ..		13					22			
Currituck ..										
Dare.....	†	0					0			
Davidson....	good	6				good	28			
Davie.....	no change	1		0	1	no change	9		2	0
Duplin.....	good	3	520		1	good	16	450	2	2
Durham		32 (e)	*				18	*		
Edgecombe ..	fair	14	*	3	5	fair	24	*	2	3
Forsyth.....	fair	32	1,000	6	14	fair	23	*	6	6

* Space exceeds 1,000 cubic feet. † See Summary of Reports from County Superintendents of Health. (a) Includes 10 in House of Correction. (b) Includes 8 in House of Correction. (c) Includes 35 in House of Correction. (d) Includes 24 in House of Correction. (e) Includes 20 in House of Correction.

Condition of Jails and County Homes by Counties.—CONTINUED.

COUNTIES.	JAIL.					HOME.				
	General Sanitary Condition.	Number Prisoners confined.	Space allotted each. (In cubic feet.)	Number giving evidence of successful vaccination.	Number who can read and write.	General Sanitary Condition.	Number inmates.	Space allotted each. (In cubic feet.)	Number giving evidence of successful vaccination.	Number who can read and write.
Franklin	†	6	*			good	28	*		
Gaston	well kept					well kept				
Gates										
Graham										
Granville	good	14		2	6	good	26			
Greene	good	1	600			good	6	1,000	4	3
Guilford	no change	67 (b)				no change	44			
Halifax		12	1,000	2	3		42	700	4	6
Harnett										
Haywood		4					2			
Henderson										
Hertford		2	*	0	0		9	*	2	4
Hyde										
Iredell	no change						26			
Jackson		8	990	3	5		3	*		
Johnston		5	1,000				14	1,000		
Jones										
Lenoir	no change	9					0			
Lincoln	good	2	*	0	0	good	22	600	13	6
McDowell										
Macon	†	0					8	600	6	7
Madison	crowded	17				good	200		10	14
Martin	fair	3	*	2	3	fair	14	*	5	4
Mecklenburg ..	fair	162 (c)				fair	59			
Mitchell	bad	1				good	8			
Montgomery ..		0				good	17	500		
Moore										
Nash	crowded	13	300	5	13	good	27	1,000	7	10
New Hanover ..	good	19 (d)	*	4	13	good	27	*	24	6
Northampton ..	good	5	1,000	0	1	good	34	800	8	6
Onslow	very good	12				very good	5			
Orange	not good	1	500	0	1	good	21	1,000	10	0
Pamlico										

* Space exceeds 1,000 cubic feet. † See Summary of Reports from County Superintendents of Health. (a) Includes 15 in House of Correction, which is crowded. (b) Includes 32 in House of Correction. (c) Includes 104 in House of Correction.

Condition of Jails and County Homes by Counties.—CONTINUED.

COUNTIES.	JAIL.					HOME.				
	General Sanitary Condition.	Number Prisoners confined.	Space allotted each, (in cubic feet.)	Number giving evidence of successful vaccination.	Number who can read and write.	General Sanitary Condition.	Number inmates.	Space allotted each, (in cubic feet.)	Number giving evidence of successful vaccination.	Number who can read and write.
Pasquotank.....		0					27	*		
Pender.....	good	2		0		good	5		0	
Perquimans.....		0				good	6			3
Person.....	†	3		0	0	good	9		9	3
Pitt.....		10	*				30	*		2
Polk.....	†	3					0			
Randolph.....	no change	7		4	5	no change	30			7
Richmond.....	fair	15	*	0	10	fair	25	*	0	5
Robeson.....	good	7				good	12			
Rockingham.....										
Rowan.....		10	500	5	8		19	500	13	8
Rutherford.....		6					20			
Sampson.....	good	5				good	20			
Stanly.....	good	1	*	0	1	good	8	*	0	1
Stokes.....	good	8	600	2	1	good	13	600	4	3
Surry.....	good	2 (a)	900		1	good	21	*		3
Swain.....	good	7				good	4			
Transylvania.....		1	*	0	1		4	*	0	1
Tyrrell.....										
Union.....	good	12				good	30			
Vance.....	good	3	*	1	1	very good	13	*	2	2
Wake.....	good	87 (b)				good	63			
Warren.....	good	0				good	23			
Washington.....										
Watauga.....	no change	2				no change	7			
Wayne.....	good	3				good	18			3
Wilkes.....	very good	8	*			very good	11			
Wilson.....	excellent	9				excellent	19			
Yadkin.....	fair	3				good	20			
Yancey.....	*	1	*	0	1	†	3			

* Space exceeds 1,000 cubic feet. † See Summary of Reports from County Superintendents of Health. (a) Includes 1 in House of Correction. (b) Includes 64 in House of Correction.

Mortuary Report for October, 1896.

TOWNS AND REPORTERS.	RACES.	POPULA- TION.		TEMPORARY ANNUAL DEATH RATE PER 1,000.		Typhoid Fever.	Scarlet Fever.	Malarial Fever.	Diphtheria.	Whooping Cough.	Measles.	Pneumonia.	Consumption.	Brain Diseases.	Heart Diseases.	Neurotic Diseases.	Diarrheal Diseases.	All Other Diseases.	Accident. Suicide.	Violence.	TOTAL DEATHS.		Deaths under 5 years.
		By Races.	Total.	By Races.	Total.																By Races.	By Towns.	
Asheville.....	White.	8,000	12,000			1						1	1	2		1	4			10	0	10	
Dr. E. C. Starnes	Colored.	4,000																					
CHARLOTTE	White.	10,855	19,651	15.6	17.7	4			1			1	3	2	3		1	3			15	29	4
C. A. Spratt, H. Om'r	Colored.	8,796		19.1		2						3	2	2	2		1	4			14	5	5
Durham.....	White.	4,000	6,000	15.0										1							5	5	3
Dr. J. M. Manning.	Colored.	2,000																			0	5	3
FAYETTEVILLE	White.	3,500	6,000	17.1	20.0			1					1	1	1			1			5	10	1
Dr. J. V. McGougau.	Colored.	2,500		24.0									1	2				1			5	1	2
GOLDSBORO	White.	3,700	5,400	9.7	15.5												2	1			3	4	7
T. H. Bain, Sec. B. H.	Colored.	1,700		28.3				1									2	1			4	7	3
GREENSBORO	White.	5,500	8,000	8.7	18.0	1						1	1	1	1			1			4	12	1
J. S. Michaux, City Clk	Colored.	2,500		38.4								1	1	1				4			8	1	4
HENDERSON	White.	2,250	4,250	5.3	19.8							1									1	7	2
Dr. W. J. Judd.	Colored.	2,000		36.0		2			1									2	1		6	2	
HILLSBORO	White.	400	700	0.0	17.1																0	1	1
Dr. D. C. Parris.	Colored.	300		40.0													1				0	0	
JACKSONVILLE	White.	150	250	0.0	0.0																0	0	
Dr. E. L. Cox.	Colored.	100		0.0																	0	0	
LENOIR	White.	800	1,100	30.0	32.7									1				1			2	3	1
Dr. A. A. Kent	Colored.	300		49.0					1												1	1	
MONROE	White.	1,800	2,400	0.0	5.0																0	1	
Dr. J. M. Blair.	Colored.	600		20.0														1			1		
OXFORD	White.	1,500	2,500	8.0	19.2								1					1			1	4	1
Dr. T. L. Booth.....	Colored.	1,000		36.0													2				3		
RALEIGH	White.	7,200	13,200	11.7	21.8							2	4	2	1		2	2	1		7	24	
T. P. Sale, Clerk B. H.	Colored.	6,000		34.0													1	1			17		
ROCKINGHAM	White.	1,300	1,750	9.2	13.7											1					1	2	1
Dr. W. H. Steele.....	Colored.	450		26.7														1			1		
ROCKY MOUNT	White.	1,600	2,400	0.0	0.0																0	0	
Dr. G. L. Wimberley.	Colored.	800		0.0																	0	0	
SALEM	White.	3,942	4,284	6.1	14.0										1			1			2	5	
S. C. Butler Mayor	Colored.	342		105.3		1												1			3		
SALISBURY	White.	3,500	5,000	10.3	19.2			1				2	1					2			3	8	
Dr. John Whitehead.	Colored.	1,500		40.0													1				5		
SCOTLAND NECK	White.	775	1,200	15.5	20.0								1					1			1	2	
Mayor J. A. Perry.	Colored.	425		28.1																	1		
SOUTHPORT	White.	800	1,300	30.0	30.0									1				1			2	3	1
E. B. Stevens, City Clk.	Colored.	400		30.0													1				1		
TARBORO	White.	1,300	2,500	0.0	0.0																0	0	
Dr. Donald Williams	Colored.	1,200		0.0																	0		
WARRENTON	White.	1,000	1,500	0.0	8.0													1			0	1	
Dr. Geo. A. Foote.	Colored.	500		24.0																	1		
WASHINGTON	White.	3,000	5,500	20.0	24.0									2			1	2			5	11	3
Dr. Joshua Tayloe.	Colored.	2,500		28.8		1	2							1				2			5		
WELDON	White.	700	1,450	17.1	24.8								1					1			1	3	
Mayor J. T. Gooch.	Colored.	750		32.0																	2		
WILMINGTON	White.	9,000	22,000	16.0	21.8		3					2	1	1			2	2	2		12	40	4
Dr. J. C. Shepard.	Colored.	13,000		25.8		1	6					4	1	1			6	2	1		28		
WILSON	White.	2,500	4,500	9.6	10.6								1					2			2	4	1
Dr. N. Anderson.	Colored.	2,000		12.0														1			2		
WINSTON	White.	5,200	10,000	30.0	36.0	2		3				2	1				2	3			13	30	4
Dr. John Bynum.	Colored.	4,800		42.5								3	1	1				2			17		

N. B. The reporters for the cities and towns printed in bold faced type have signed this certificate "I hereby certify that this report gives the whole number of deaths occurring within the corporate limits during the above month."

METEOROLOGICAL SUMMARY FOR NORTH CAROLINA, OCT., 1896.
Furnished by the North Carolina Section of the Climate and Crop Service.
C. F. VON HERRMANN, DIRECTOR.

STATIONS.	TEMPERATURE, (DEGREES FAHR.)									Total Precipitation. (in inches)	NO. OF DAYS.				Prevailing Wind.
	Monthly Mean.	Highest.	Date.	Mean Maximum.	Lowest.	Date.	Mean Minimum.	Monthly Range.	Mean Daily Range.		Clear.	Partly Cloudy.	Cloudy.	Rainy.	
Asheville.	54.2	76	27	66.5	27	19	42.0	49	24.5	0.87	20	7	4	7	N
Beaufort.....	62.6	79	7	70.1	44	19	55.2	35	14.9	3.07	17	4	10	9	N E
Charlotte.....	59.0	80	1	69.0	34	19	49.1	46	19.9	0.98	13	12	6	6	N E
Chapel Hill.....	57.7	79	21	69.0	32	19	46.4	47	22.7	1.08	21	3	7	4	W
Horse Cove.....	55.1	72	1	65.0	31	19	45.2	41	19.8	3.89	21	3	7	6	N W
Henderson.....	57.9	80	21	68.5	34	19	47.3	46	21.2	1.37	16	9	6	5	N
Littleton.....	56.4	79	29	67.4	31	19	45.4	48	22.0	1.49	6	9	16	5	N E
Louisburg.....	56.7	78	30	67.5	31	19	45.9	47	21.6	1.76	.....	.....	.....	5	.....
Lenoir.....	54.9	75	1	65.3	30	19	46.7	45	18.6	1.01	20	4	7	4	N E
Monroe.....	58.3	78	31	70.2	29	19	46.4	49	23.8	1.58	18	9	4	3	S W
Morganton.....	54.9	78	7	67.4	31	19	48.9	47	18.5	0.76	.....	.....	.....	2	.....
Mt. Airy.....	54.6	76	1	66.8	24	19	42.4	52	24.4	0.45	14	11	7	3	S W
Marion.....	57.8	79	6	69.6	28	19	45.9	51	23.7	1.46	15	11	5	7	W
Newbern.....	62.8	81	31	70.5	44	19	55.2	37	15.2	2.17	14	5	12	9	.....
Oak Ridge.....	56.3	76	5	67.3	32	19	45.3	44	22.0	1.26	19	4	8	4	W
Pittsboro.....	56.7	76	29	67.6	29	19	45.8	47	21.8	1.28	16	8	7	3	S W
Raleigh.....	58.8	78	21	68.4	36	19	49.5	42	18.9	2.07	8	13	10	6	N
Roxboro.....	56.3	76	30	67.3	34	8	45.3	42	22.0	0.36	18	6	7	3	.....
Rockingham.....	62.5	82	1	76.1	34	19	48.9	48	27.2	1.90	22	0	9	2	N W
Southport.....	63.6	85	1	72.5	43	20	54.6	42	17.9	2.72	9	12	9	9	N E
Salisbury	56.0	79	1	68.4	24	19	43.6	55	24.8	1.00	.....	.....	.....	2	S W
Selma.....	58.0	81	30	67.7	32	19	48.4	49	19.3	2.25	.....	.....	.....	2	.....
Saxon.....	57.5	79	30	68.3	25	19	46.7	54	21.5	0.62	13	9	9	3	N W
Tarboro.....	58.2	81	1	71.4	29	19	44.9	52	26.5	2.38	14	7	10	6	N
Weldon.....	53.1	78	30	67.6	32	20	44.6	46	23.0	1.59	10	11	10	8	N W
Wilmington.....	61.6	80	1	69.7	42	19	53.6	36	16.1	4.08	15	16	6	10	N E

Summary for October, 1896.

Mean barometer 30.08 inches; normal for October 30.09. Highest barometer 30.38 on the 9th at Raleigh. Lowest barometer 29.59 on the 24th at Hatteras. Mean temperature 57.5 degrees; normal for October 59.4. Highest temperature 85 on the 1st at Southport. Lowest temperature 23 on the 19th at Flat Rock. Average rainfall 1.90 inches; normal for October 3.55 inches. Greatest monthly rainfall 5.59 inches at Hatteras; least monthly rainfall 0.36 inch at Roxboro. Average number of clear days 16; partly cloudy 7; cloudy 8; rainy 5. Prevailing wind direction North. Average hourly velocity 8.0 miles per hour. Normal direction for October, Northeast; normal velocity 7.5 miles per hour.

BULLETIN

OF THE

NORTH CAROLINA BOARD OF HEALTH.

Published Monthly at the Office of the Secretary of the Board, at Raleigh, N. C.

GEO. G. THOMAS, M. D., *Pres.*,.....Wilmington.

S. WESTRAY BATTLE, M. D.,.....Asheville.

W. H. HARRELL, M. D.,.....Williamston.

JOHN WHITEHEAD, M. D.,.....Salisbury.

W. P. BEALL, M. D.,.....Greensboro.

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PROF. F. P. VENABLE,.....Chapel Hill.

J. C. CHASE, CIV. ENG.,.....Wilmington.

RICHARD H. LEWIS, M. D., *Secretary and Treasurer*, Raleigh.

VOL. XI.

DECEMBER, 1896.

No. 9.

Alcoholic Beverages.—Effects.

By Dr. S. Westray Battle, U. S. N., of Asheville. (Read at the Charlotte Health Conference.)

Ladies and Gentlemen: I am not here to deliver a temperance lecture, though I have but little doubt that there are those among you who will feel when I shall have finished that my talk has been in effect tantamount to that sort of a discourse; nor indeed shall I be sorry if it proves productive of good in calling attention to a subject so important to us all.

My reasons for choosing the subject, "The Effects of Alcoholic Beverages," are two-fold:

First, because it is one of universal interest, and has engaged the attention of some of the best thinkers on hygiene since the beginning of civilization.

Again, I am impelled to the consideration of this important subject, through a sense of duty as a member of the Board of Health of North Carolina, to do what I can in my feeble way to disseminate a more general knowledge on a matter so germane to the public health.

I shall endeavor to confine myself to the rational or scientific consideration of the effect of alcoholic beverages in health, and when used in excess, that we may all of us know just how necessary or unnecessary they may be to us in dietetics. The moral side of the question I shall leave to others who can more appropriately do justice to the subject; though I cannot but just mention in passing that it has been stated, and I believe truly so, that if alcohol were unknown one-half of the sin and a large part of the poverty and unhappiness of the world would disappear.

Although intensely personal to myself, I will mention how curiously I was led into the choice of this subject. Not many days ago my friend, Dr. Lewis, Secretary of the Board, and myself, were in correspondence concerning some health matters, when I had occasion to say that I was not up to much, and was fearful lest I was in for my annual gouty attack. I perhaps had a sneaking notion, too, that making such an announcement to my friend would rather excuse me from any active par-

icipation in the proceedings of the Board of Health here. But not so; I got no such encouragement. In due course of mail there came along a letter from the good doctor, full of commiseration for me, but winding up with a parting injunction somewhat to this effect: "Take to horseback as you did last winter, old-fashioned country doctor style; keep good hours; don't work too hard; and be chary of your beer; I count upon you at Charlotte; let me know the title of your paper." So there is gout, beer, paper at Charlotte. And so it occurred to me, though I have not the slightest idea the amount of beer I consume has anything to do with my gouty ailments, I may err on this point, as we are ever prone to excuse ourselves, perceiving with great clearness the mote in our brother's eye, while we look through, around and by the great beam in our own; still, as I say, it occurred to me that such a topic was one of interest, and I would endeavor to present the subject as well as I could in the space of time allotted me, and show the good doctor I was not afraid of handling the subject without gloves.

I shall divide my subject into a brief consideration of the different kinds of alcoholic beverages; the physiological action of alcohol; its influence on the various organs, and as an article of diet in health.

I.—BEER.

So we will return to the matter in hand, and for the purpose conveniently classify the alcoholic beverages under the heads of beer, wine and spirits.

Beer, as you all probably know, consists of malt and hop extracts, alcohol formed by fermentation, and salts added in the water used, or present in the

malt and hops. The specific gravity varies from 1,006 to 1,030, and even more in the thick German beers. Simple lager beer has a specific gravity of 1,016 as compared with water, which we call 1,000; so you observe it is but little heavier than water and contains about 5 per cent. of alcohol, though this varies from 1 to 9 and 10 per cent. with the different kinds of beer. The malt, which is in the form of extract in beer, is from 4 to 15 per cent. It is least in the bitter and highest in the sweet beers and ales. The hop extract is in much smaller quantity. Beer also contains some free acid and a small amount of sugar.

II.—WINES.

The composition of wine is so various that it is difficult to give a summary. The chief ingredients are:

1. Alcohol from 16 to 25 per cent. It has been stated that the fermentation of grapes when properly done cannot yield more than 17 per cent. of alcohol, and that any amount over and above this is added.

Port wine, 16 to 23 per cent.

Sherry, 16 to 25 per cent.

Madeira, 16 to 22 per cent.

Marsala, 15 to 25 per cent.

Bordeaux red, Chateau Lafitte, Margau La Rose, Barsac, St. Emilion, St. Estephe, etc., 7 to 13.

Bordeaux, white, Sauterne, Barsac, etc., 11 to 18.

Rhine wines, Johannisburgh, Hochheimer, Rudesheimer, etc., 7 to 16.

Champagnes, 8 to 13, and so on.

We readily see from the above how the amount of alcohol in wines varies, even from the same district.

To tell how much alcohol is consumed in any given quantity of wine or beer, measure the bottle in ounces and multiply it by the percentage of

alcohol with the decimal point before it. For example: A pint bottle of beer is supposed to contain $1\frac{1}{2}$ ounces. I don't know a single brewing establishment, by the way, that gives an honest pint: their so-called pint bottles hold anywhere from 11 to 15 ounces, but for illustration we will take it at 16 ounces. We have stated the quantity of alcohol in beer at 4 per cent. Now multiply 16 by .04 and we have as a result .64 of an ounce, rather more than one-half ounce of absolute alcohol, equivalent to two tablespoonfuls of whisky, which we will see contains about 50 per cent. of alcohol. In other words, a bottle of beer is in alcoholic potency about the same as an ordinary drink of whisky.

2. Ethers: A number of ethers enter into the composition of wine. It is stated that there are 25, or even more, of these compound ethers in wine, as oenanthylic, malic, citric, tartaric, etc. The "bouquet" of wine is due to these compound ethers, especially oenanthylic, and remains as long as the wine is sound, becoming more pronounced as the wine ages.

3. Other ingredients are sugar, free acids, a small amount of fat, coloring matter and salts 1 to 3 per cent. The specific gravity of wines depends upon the amount of alcohol and solids, and varies from 975 to 1050.

III.—SPIRITS.

These contain the largest quantity of alcohol of all the alcoholic beverages. They are made by distilling fermented grapes (brandies), fermented molasses (rum), fermented malt or malt and grain and other materials (whisky). The quantity of alcohol varies from 50 to 60 per cent.

Brandy contains, besides alcohol, a

number of the compound ethers already spoken of, coloring matter of the cask or caramel; tannins are also present. Perhaps it is not generally known that all spirits are colorless when fresh from the still. Burnt sugar or caramel is largely used, I believe, to give proper color, which also seems to carry along with it the idea of age and a certain mellowness. Irish and Scotch whiskies derive a peculiar flavor from the malt or other material, being dried over peat fires, or by the direct impregnation of peat smoke.

Gin is only alcohol diluted, with a little oil of juniper and other flavorings and sweetening agents added. The specific gravity varies with the amount of alcohol, ranging from 930 as low as 870.

It may be interesting to give the names of some of the distilled spirits used in different parts of the world.

Hindoos, Malays, etc., use Arrack. Rice-Areca nut.

Greeks and Turks, Raki and Mastic, Rice-grape skin.

Hindoos, Toddy, Cocanut.

Chinese, Samshoo, Rice.

Japanese, Sacie.

Pacific Islanders, Kava or Kawa, Macropiper.

Mexicans, Pulque, Agave.

South American, Chica, Maize.

Russians and Poles, Vodki, Potato.

Abyssinians, Tallah, Millet.

Tartars, Koumiss, Mares' Milk.

The physiological action of the alcoholic beverage differs from that of pure alcohol, as they contain bodies besides alcohol, as we have seen, which have a certain physiological action of their own, and great distinction must be made between the effects of alcohol taken in dietetic doses, and the effect when taken in excess. Beer has an

action of its own, probably due to the active principle of the hops, lupuline, used in its manufacture. In small quantities it is soporific; and taken in large quantities it becomes noticeably depressing in its action, probably from the lupulin mentioned, which is the active principle of hops, a narcotic of medium potency. When beer is taken daily in excess, or even moderately for a long period, it leads to plethora or a deposit of fat by lessening the oxidation or tissue changes in the body; hence come many of the anomalous affections classed as gouty, against which our esteemed secretary was advising me. The question, What is excess? is not easy to answer, and will depend both on the composition of the beer and the habits of life of those who take it; but judging from the amount of alcohol which is allowable, (within the health limit,) from one to two pints of beer is sufficient for a healthy man per day.

Now, then, let us run over the effects of alcohol: The effects of the alcoholic beverages upon the human system in health will be better appreciated by a consideration of the physiological effects of alcohol, their most important constituent.

On the stomach: When taken into the stomach alcohol is absorbed with little or no alteration, at once passing into the blood and then throughout the body. Its presence may be detected in almost any organ of the body soon after it is taken. Its effect on the stomach is pronounced; in small quantities it aids digestion, though some stomachs are intolerant of it in any form. In larger quantities digestion is retarded, the mucous membrane is reddened and a condition of chronic catarrh is produced—among the early

indications of which may be mentioned morning cough, retching or "gagging," nausea being easily provoked; continued, it causes an increase in the connective tissue between the glands, and finally a degeneration and obliteration of these parts, when stomach digestion is destroyed.

On the liver: In large quantities taken daily, it increases the size of this organ, by increasing the connective tissue till the very growth of the latter so encroaches on the glandular structure that it is destroyed, the capsule of Glisson shrinks, the organ becoming smaller, and there results a condition of the organ variously called "gin liver," "tooper's liver" and "hob-nail liver," the last-named from the irregularities brought about by the shrinking process. When this takes place health is gone. The integrity of the organ is compromised, never to be restored.

On the lungs: In large quantities habitually taken the effect is perhaps less noticeable on the lungs than many of the other organs of the body, though bronchial catarrhs and emphysema are common in those who take much alcohol.

On the heart and blood vessels: It undoubtedly increases the force and quickness of the heart's action. Dr. Edmund A. Parkes, of London, a distinguished writer on hygiene, and to whom I am indebted for much of the subject-matter of this paper, found that brandy augmented the rapidity of the pulse 13 per cent., and that the force was also increased; going further, he found, taking the usual estimate of the heart's work, its daily excess of work, with 4.8 fluid ounces of absolute alcohol, was equal to a force that could lift 15.8 tons one foot high.

It causes dilatation of the superficial vessels, as shown by the redness and flushing of the skin. Authorities differ as to whether alcohol lowers the temperature in health or not, but the influence must be inconsiderable. In some cases of fever there is little doubt that it does lower the temperature, especially with children, and perhaps in health, when given in medium doses, it may lower the temperature by dilating the superficial vessels, whereby more blood comes to the surface, and thus more heat is lost by radiation and the increased perspiration. It most assuredly lowers the natural resistance of the body against cold—hence stimulants should be taken at the end of a period of exposure rather than in the beginning or middle. When exposed for a long period to intense cold a drink may give one a feeling of comfort and exhilaration, but the power of resistance is lessened, and many instances are recorded where death has occurred, under such conditions, during sleep.

On the nervous system: On most persons it acts at once as an anaesthetic, blunting the sensibilities, lessening the rapidity of impressions, the power of thought and the perfection of the senses. In other cases it causes increased rapidity of thought and excites the imagination, but even here the power of control over a train of thought is lessened. There is no question that several brain diseases, including some cases of insanity, are caused by the excessive use of alcohol. Degenerative changes in the various organs of the body result from the immoderate use of alcohol, and the latter has aptly been called the very "genius of degeneration;" nor are these degenerations confined to the

notoriously intemperate. As Dr. Parkes says: "I have seen them in women accustomed to take wine in quantities not excessive, and who would have been shocked at the imputation that they were taking too much—although the result proved that for them it was excess." To some individuals alcohol in every shape or form is a poison, not necessarily producing intoxication, but causing sooner or later those degenerative changes which appear to be in all cases the same, fatty and fibroid.

Dietetic use: Is alcohol desirable as an article of diet in health? No hard and fast rule can be laid down on this point, and no satisfactory answer can be given with our present knowledge. There comes in the question of environment, the poverty or ease, the hard mental or bodily labor which may surround healthy individuals, hence the value or the want of value of a comparison of the health of the teetotaler with those who use alcohol in moderation. There are individuals in both classes enjoying the maximum of health and the greatest vigor of mind and body. There are arguments for and against the utility of alcohol in health. One of the chief arguments brought forth to sustain the utility of alcohol is the almost universal use of it among the civilized nations of the earth. Dr. Parkes is fair and broad-minded, and after an exhaustive discussion of the question arrives at the following conclusions: "The facts now stated make it difficult to avoid the conclusion that the dietetic value of alcohol has been much overrated. It does not appear to me possible at present to condemn alcohol altogether as an article of diet in health; or to prove that it is invariably hurtful, as some have attempted to do. It produces ef-

fects which are often useful in disease and sometimes desirable in health, but in health it is certainly not a necessity, and many persons are much better without it. As now used by mankind, it is infinitely more powerful for evil than for good; though it can hardly be imagined that its dietetic use will cease in our time, yet a clearer view of its effects must surely lead to a lessening of the excessive use which now prevails. As a matter of public health, it is most important that the medical profession should throw its great influence into the scale of moderation; should explain the limit of the useful power, and show how easily the line is passed which carries us from the region of safety into danger, when alcohol is taken as a common article of food."

If alcohol is useful, it is obviously important to determine just when the limit of usefulness is reached. Experiments have not been numerous, but fairly accurate on this point. Dr. Parkes says Dr. Anstie found that one fluid ounce and a half caused the appearance of alcohol in the urine, which he regarded as a sign that as much had been taken as could be disposed of in the body. The experiments of Dr. Parkes himself and those of Count Wollowicz corroborated this result. In terms of the alcoholic beverage this would mean, giving the outside limit as one and one-half ounces of absolute alcohol, that this quantity would be equivalent to three fluid ounces of brandy (50 per cent.); seven and one-half ounces of sherry (20 per cent. of alcohol); or to 30 ounces of beer (5 per cent. of alcohol); and Dr. Parkes says: "I believe that this standard is fairly correct, since from inquiry of many healthy men who take alcohol in moderation, I find that

they seldom exceed the above amount." There is no doubt that the greater part of the abuse of alcohol to-day arises from the pernicious habit of treating. You have treated me, so I must in turn, before we separate, treat you. American ways are good enough generally, but there is a viciousness in this, the like of which would be hard to find anywhere; nor has the custom the underlying principle of true politeness, from which in its inception nothing was further than the imposing of an obligation.

Allah be praised! the custom is on the wane. Likewise the general hard drinking of a few years ago.

The passing of the morning cocktail, or ante-prandial toddy, is also to be noted with loud praise. I am informed on good authority that drinking of spirits in the clubs of New York city has notably decreased of late years, beers and wines of moderate alcoholic power taking their places largely. In France, where water seems to have been relegated to the bath room and kitchen, and the light wines, especially the light red wines, are drunk to a surprising degree, drunkenness is far from common; indeed, it is a rare thing to see an intoxicated person. It is always better, even with the lighter alcoholics, to take them with the meal. We are creatures of habit.

Summary of Reports from County Superintendents of Health for November, 1896, (Seventy-nine counties reporting).

In the blanks on which these reports are made the following items are called for:

1. The number of cases of small-pox, measles, whooping cough, scarlatina, diphtheria, typhoid fever, pernicious

malarial fever, hemorrhagic malarial fever, yellow fever and cholera which have occurred in the county during the past month.

2. The diseases which have been prevalent in the county, and in what parts.

3. Epidemics among domestic animals.

4. Remarks as to special unsanitary conditions in the county.

In few counties do physicians generally report these details to the Superintendent, though furnished with blanks for that purpose, and in most cases he has to depend upon himself alone in making his report.

Details as to the jails, houses of correction, and county homes are also given in these reports and will be found tabulated on other pages.

ALAMANCE—Dr. R. A. Freeman, Burlington. A few cases of typhoid fever.

ALEXANDER—Dr. T. F. Stevenson, Taylorsville. One case of typhoid fever.

ALLEGHANY—Dr. Robt. Thompson, Sparta. Three cases of scarlatina, and some pneumonia in the middle part.

ANSON—Dr. E. S. Ashe, Wadesboro. No report.

ASHE—Dr. L. C. Gentry, Crumpler. One case of typhoid fever. Health exceptionally good. Hog cholera.

BEAUFORT—Dr. Joshua Tayloe, Washington. No diseases reported.

BERTIE—Dr. H. V. Dunstan, Windsor. Two cases of typhoid fever. Intermittent and remittent fevers. An epidemic of chicken and hog cholera.

BLADEN—Dr. Newton Robinson, Elizabethtown. No diseases to report.

BRUNSWICK—Dr. D. I. Watson,

Southport. Whooping cough (15) in many parts.

BUNCOMBE—Dr. E. C. Starnes, Asheville. Two cases of scarlatina.

BURKE—Dr. J. L. Laxton, Morganton. No diseases to report.

CABARRUS—Dr. Robert S. Young, Concord. Twelve cases of whooping cough, three of scarlatina and five of typhoid fever.

CALDWELL—Dr. A. A. Kent, Lenoir. Whooping cough (100) in all parts. Three cases of typhoid fever.

CAMDEN—No Board of Health.

CARTERET—Dr. George N. Eumett, Beaufort. One case of scarlatina and four of typhoid fever. Dysentery and malarial fever. An epidemic of distemper among horses.

CASWELL—Dr. W. O. Spencer, Yanceyville. Very little sickness.

CATAWBA—Dr. D. McD. Yount, Newton. Twenty cases of measles, thirty-eight of whooping cough, five of typhoid fever and two of hemorrhagic malarial fever. One of the inmates of the county home, in good health, claims to be 107 years of age and relates incidents which occurred 95 years ago.

CHATHAM—Dr. J. B. Matthews, of Pittsboro, has been elected Superintendent of Health. There have been a few cases of whooping cough and some chills and fever along certain streams. Great numbers of swine have died of cholera and it is still active in many sections. The buildings at the county home have been recently cleaned and whitewashed, and are as comfortable as such structures can possibly be made. The jail is very clean and the prisoners are well cared for.

CHEROKEE—Dr. J. F. Abernathy, Murphy. Twelve cases of typhoid fever. Hog cholera in upper mountain parts.

CHOWAN — Dr. R. H. Winborne, Rockyhook. One case of typhoid fever and one of hemorrhagic malarial fever. Hog cholera to some extent. Little sickness.

CLAY—Dr. W. E. Sanderson, Hayesville. Two cases of typhoid fever.

CLEVELAND—Dr. O. P. Gardner, Shelby. No diseases to report.

COLUMBUS—Dr. I. Jackson, Whiteville. Two cases of typhoid fever.

Craven—Dr. J. W. Duguid, Newbern. No diseases reported. County in fine sanitary condition. The public building is nearly completed. The jail is in better sanitary condition than ever before.

CUMBERLAND—Dr. J. Vance McGougan, Fayetteville. Five cases of whooping cough. Hemorrhagic malarial fever in certain sections east of the Cape Fear.

CURRITUCK—No Board of Health.

DARE—Dr. W. B. Fearing, Manteo. Seven cases of typhoid fever.

DAVIDSON—Dr. John Thames, Lexington. No diseases to report.

DAVIE—Dr. James McGuire, Mocksville. Two cases of measles and one of hemorrhagic malarial fever. A few cases of continued malarial fever in the northern part.

DUPLIN—Dr. J. C. Grady, Magnolia. Three cases of typhoid fever. An epidemic of hog and chicken cholera. The public buildings have just been thoroughly cleaned.

DURHAM—Dr. John M. Manning, Durham. Catarrhal troubles in nearly all parts.

EDGECOMBE—Dr. L. L. Staton, of Tarboro, was elected by the County Commissioners, upon the recommendation of the County Board of Health, to succeed the late Donald Williams, M. D., who passed away early in November. It is with sincere regret that we chronicle the death of this amiable gentleman and popular physician. Dr. Staton reports two cases of typhoid fever and some malarial diseases.

FORSYTH—Dr. E. F. Strickland, Bethania. A few cases of scarlatina and of typhoid fever.

FRANKLIN—Dr. E. S. Foster, Louisburg. No diseases to report.

GASTON—Dr. J. H. Jenkins, Dallas. Mumps and whooping cough. Hog cholera.

GATES—No Board of Health.

GRAHAM—No Board of Health.

GRANVILLE—Dr. T. L. Booth, Oxford. Fifteen cases of whooping cough, four of scarlatina and four of typhoid fever.

GREENE—Dr. Joseph E. Grimsley, Snow Hill. A few cases of malarial fever.

GUILFORD—Dr. W. J. Richardson, Greensboro. No report.

HALIFAX—Dr. I. E. Green, Weldon. Three cases of whooping cough, one of scarlatina and one of diphtheria. Very little sickness.

HARNETT—No Board of Health.

HAYWOOD—Dr. J. Howell Way, Waynesville. Seven cases of typhoid fever. Comparatively little sickness.

HENDERSON—No Board of Health.

HERTFORD—Dr. John W. Tayloe, Union. One case of typhoid fever. Very little sickness of any kind.

HYDE—No Board of Health.

IREDELL—Dr. W. J. Hill, Statesville. Some typhoid fever, a few cases of scarlatina and one or two of pneumonia.

JACKSON—No report.

JOHNSTON—Dr. R. J. Noble, Selma. Two cases of typhoid fever.

JONES—No Board of Health.

LENOIR—Dr. James M. Parrott, Kinston. Pneumonia in all parts.

LINCOLN—Dr. Thos. F. Costner, Lincoln. Three cases of whooping cough and two of typhoid fever. Malarial fevers in the southern part.

MCDOWELL—Dr. Geo. I. White, Marion. A few cases of whooping cough. Little sickness.

MACON—Dr. S. H. Lyle, Franklin. About twelve cases of whooping cough and nine of typhoid fever. Epidemic of hog cholera.

MADISON—Dr. Jas. K. Hardwicke, Marshall. Fifty cases of whooping cough and four of typhoid fever. A new jail is badly needed.

MARTIN—Dr. W. H. Harrell, Williamson. One case of measles and three of hemorrhagic malarial fever.

MECKLENBURG—Dr. H. M. Wilder, Charlotte. Nine cases of diphtheria in November. Very little sickness at present.

MITCHELL—Dr. C. E. Smith, Bakersville. Very little sickness.

MONTGOMERY—Dr. W. A. Simmons, Troy. The health of the county is as good as I have ever known it for this time of the year.

MOORE—No report.

NASH—Dr. J. J. Mann, Nashville. No report.

NEW HANOVER—Dr. J. C. Shepard,

Wilmington. Six cases of scarlatina and eleven of typhoid fever. Catarrhal and malarial diseases in all parts.

NORTHAMPTON—Dr. H. W. Lewis, Jackson. Three cases of hemorrhagic malarial fever. Malarial diseases in all parts.

ONSLow—Dr. E. I. Cox, Jacksonville. One case of hemorrhagic malarial fever. Very little sickness. Hog cholera in some parts.

ORANGE—Dr. D. C. Parris, Hillsboro. Some cases of measles, three of scarlatina and three of typhoid fever. Respiratory diseases in all parts.

PAMLICO—No Board of Health.

PASQUOTANK—Dr. J. E. Wood, Elizabeth City. Malarial and catarrhal fevers.

PENDER—Dr. Geo. F. Lucas, Currie. Bronchial troubles in all parts.

PERQUIMANS—Dr. C. C. Winslow, Winfall. Four cases of scarlatina, one of diphtheria, two of typhoid fever and three of pernicious malarial fever.

PERSON—Dr. J. A. Wise, Roxboro. Some pneumonia.

PITT—Dr. Frank W. Brown, Greenville. Four cases of typhoid fever and three of hemorrhagic malarial fever. Colds and malarial fevers.

POLK—Dr. C. J. Kenworthy, Tryon. Health of county excellent. Some repairs are necessary on the jail and this will be brought to the attention of the County Commissioners at their next meeting.

RANDOLPH—Dr. T. T. Ferree, Ashboro. Health of the people remarkably good.

RICHMOND—Dr. W. H. Steele, Rockingham. Three cases of scarlatina o

mild type. A few cases of influenza and tonsillitis. An epidemic of hog cholera.

ROBESON—Dr. T. A. Norment, Jr., Lumberton. Typhoid fever in nearly all parts. Special precautions are being taken as to the town artesian wells. We will soon have garbage carts and a crematory.

ROCKINGHAM—No report.

ROWAN—Dr. John Whitehead, Salisbury. A few cases of whooping cough and of typhoid fever, and one of hemorrhagic malarial fever.

RUTHERFORD—Dr. E. B. Harris, Rutherfordton. Some catarrhal cases here and there.

SAMPSON—Dr. Jno. A. Stevens, Clinton. Whooping cough, pneumonia, a few cases of typhoid fever, and some malarial fevers. Hog cholera.

STANLY—Dr. D. P. Whitley, Millington. Twenty-five cases of measles around Porter. Ten cases of typhoid fever. Some malarial fever, one case pernicious.

STOKES—Dr. W. L. McCanless, Danbury. Influenza in all parts.

SURRY—Dr. John R. Woltz, Dobson. Two cases of typhoid fever. Colds.

SWAIN—Dr. A. M. Bennett, Bryson City. No diseases to report.

TRANSYLVANIA—Dr. M. M. King, Brevard. One case of typhoid fever. Hog cholera.

TYRRELL—Dr. B. W. Cohn, Columbia. No report.

UNION—Dr. J. E. Ashcraft, Monroe. Six or eight cases of whooping cough and five of diphtheria. Some typhoid and malarial fevers. Catarrhal troubles.

VANCE—Dr. J. H. Tucker, Hender-

son. Eight cases of typhoid and many of malarial fever. The near approach of winter gives an increase of bronchitis and catarrhal fever. Health of general public good.

WAKE—Dr. P. E. Hines, Raleigh. Four cases of whooping cough, one of scarlatina and two of typhoid fever. Bronchitis, catarrhal affections, pneumonia, rheumatism and intermittent fever in parts heard from. Six replies received from twenty-eight postal card requests for reports. The roof of the kitchen and dining room at the work house needs repairs.

WARREN—Dr. Geo. A. Foote, Warrenton. No diseases except colds. The court house leaks badly and is not as clean as it ought to be.

WASHINGTON—No Board of Health.

WATAUGA—Dr. W. B. Councill, Boone. Typhoid fever (4 cases reported) in the eastern part. An epidemic of hog cholera in Boone township, which subsided on the approach of cold weather.

WAYNE—Dr. W. J. Jones, Jr., Goldsboro. One case of scarlatina. Catarrhal troubles in all parts.

WILKES—Dr. J. M. Turner, Wilkesboro. Influenza, pneumonia, diphtheria and typhoid fever to some extent in nearly all parts.

WILSON—Dr. N. Anderson, Wilson. No diseases reported.

YADKIN—Dr. T. R. Harding, Yadkinville. Typhoid fever in all parts and a few cases of diphtheria. Some pernicious malarial fever in one section.

YANCEY—Dr. J. L. Ray, Burnsville. A few cases of typhoid fever.

Review of Diseases for November, 1896.

BRONCHITIS. — From Pender and Vance.

CHOLERA, in Chickens. — From Bertie and Duplin.

CHOLERA, in Hogs. — From Ashe, Bertie, Chatham, Cherokee, Duplin, Gaston, Macon, Onslow, Richmond, Sampson, Transylvania and Watauga—12 counties.

DIPHTHERIA. — From Halifax, Perquimans, Union, Wilkes and Yadkin.

DISTEMPER, in Horses. — From Carteret.

DYSENTERY. — From Carteret.

INFLUENZA. — From Richmond, Stokes and Wilkes.

MALARIAL FEVER. — From Bertie, Carteret, Catawba, Chatham, Chowan, Cumberland, Davie, Edgecombe, Greene, Lincoln, Martin, New Hanover, Northampton, Onslow, Pasquotank, Perquimans, Pitt, Rowan, Stanly, Union, Vance, Wake and Yadkin—23 counties.

MALARIAL FEVER, HEMORRHAGIC. — From Catawba, Chowan, Cumberland, Davie, Martin, Northampton, Onslow, Pitt and Rowan—9 counties.

MALARIAL FEVER, PERNICIOUS. — From Perquimans and Stanly.

MEASLES. — From Catawba, Davie, Martin, Orange and Stanly.

MUMPS. — From Gaston.

PNEUMONIA. — From Alleghany, Iredell, Lenoir, Person, Sampson, Wake and Wilkes—7 counties.

RHEUMATISM. — From Wake.

SCARLATINA. — From Alleghany, Buncombe, Cabarrus, Carteret, Forsyth, Granville, Halifax, Iredell, New Hanover, Orange, Perquimans, Richmond, Wake and Wayne—14 counties.

TONSILLITIS. — From Richmond.

TYPHOID FEVER. — From Alamance, Alexander, Ashe, Bertie, Cabarrus, Caldwell, Carteret, Catawba, Cherokee, Chowan, Clay, Columbus, Dare, Duplin, Edgecombe, Forsyth, Granville, Haywood, Hertford, Iredell, Johnston, Lincoln, Macon, Madison, New Hanover, Orange, Perquimans, Pitt, Robeson, Rowan, Sampson, Stanly, Surry, Transylvania, Union, Vance, Wake, Watauga, Wilkes, Yadkin and Yancey—41 counties.

WHOOPING COUGH. — From Brunswick, Cabarrus, Caldwell, Catawba, Chatham, Cumberland, Gaston, Granville, Halifax, Lincoln, McDowell, Macon, Madison, Rowan, Sampson, Union and Wake—17 counties.

Summary of Mortuary Reports for November, 1896. (Twenty-four towns.)

	White.	Col'd.	Total.
Aggregate population.....	81,972	59,513	141,485
Aggregate deaths.....	70	80	150
Representing annual death rate per 1000.....	10.2	16.1	12.7
<i>Causes of Death.</i>			
Typhoid Fever.....	5	3	8
Scarlet Fever.....	1	0	1
Malarial Fever.....	0	3	3
Diphtheria.....	1	0	1
Pneumonia.....	3	4	7
Consumption.....	22	12	34
Brain diseases.....	6	4	10
Heart diseases.....	10	3	13
Neurotic diseases.....	0	1	1
Diarrhoeal diseases.....	5	9	14
All other diseases.....	15	40	55
Accident.....	2	1	3
	70	80	150
Deaths under 5 years.....	15	28	43
Still-born.....	6	7	13

Condition of Jails and County Homes by Counties for November, 1896.

COUNTIES.	JAIL.					HOME.				
	General Sanitary Condition.	Number Prisoners confined.	Space allotted each. (in cubic feet.)	Number giving evidence of successful vaccination.	Number who can read and write.	General Sanitary Condition.	Number inmates.	Space allotted each. (in cubic feet.)	Number giving evidence of successful vaccination.	Number who can read and write.
Alamance...	good	17 (a)	.....	.....	.....	good	29	.....	.....	.....
Alexander ..	very good	0	.....	.....	.....	very good	8	.....	.....	2
Alleghany...	fair	5	.....	.....	.....	fair	7	.....	.....	.....
Anson .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Ashe	good	5	650	1	2	good	9	500	2	3
Beaufort	good	12	.....	.....	.....	good	15	.....	.....	.....
Bertie	very good	16 (b)	.....	.....	8	very good	14	.....	2	10
Bladen	very good	1	.....	.....	.....	very good	4	.....	.....	.....
Brunswick ...	no change	1	*	0	1	no change	14	700	0	0
Buncombe ...	no change	76 (c)	638	19	32	no change	38	776	25	16
Burke	no change	8	.....	.....	.....	no change	16	.....	.....	.....
Cabarrus	good	42 (d)	980	8	17	good	28	*	8	13
Caldwell .....	.....	7	*	0	6	.....	5	*	1	3
Camden .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Carteret .....	.....	0	.....	.....	.....	.....	0	.....	.....	.....
Caswell	fair	2	.....	.....	.....	fair	31	.....	.....	.....
Catawba	well kept	5	*	0	1	well kept	39	*	16	20
Chatham	very go'd+	5	.....	.....	3	very go'd+	25	*	.....	4
Cherokee	good	7	.....	.....	.....	good	5	.....	.....	.....
Chowan	good	0	*	0	0	good	5	*	2	0
Clay .....	.....	1	.....	.....	.....	.....	0	.....	.....	.....
Cleveland ...	very good	15	.....	.....	.....	very good	21	.....	.....	.....
Columbus ...	very good	6	*	.....	6	very good	9	*	.....	0
Craven	very go'd+	16	.....	.....	.....	.....	27	.....	.....	.....
Cumberland ..	.....	10	.....	.....	.....	.....	15	.....	.....	.....
Currituck ..	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Dare .....	.....	1	.....	.....	.....	.....	0	.....	.....	.....
Davidson	very good	3	.....	.....	.....	very good	31	.....	.....	.....
Davie	no change	2	.....	1	1	no change	9	.....	2	1
Duplin	good+	2	500	.....	.....	good	16	450	3	2
Durham .....	.....	37 (e)	959	.....	.....	.....	20	*	.....	.....
Edgecombe ...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Forsyth	good	32	1,000	4	8	good	23	*	6	7

* Space exceeds 1,000 cubic feet. + See Summary of Reports from County Superintendents of Health. (a) Includes 16 in House of Correction. (b) Includes 11 in House of Correction. (c) Includes 62 in House of Correction. (d) Includes 24 in House of Correction. (e) Includes 18 in House of Correction.

Condition of Jails and County Homes by Counties.—CONTINUED.

COUNTIES.	JAIL.					HOME.				
	General Sanitary Condition.	Number Prisoners confined.	Space allotted each. (In cubic feet.)	Number giving evidence of successful vaccination.	Number who can read and write.	General Sanitary Condition.	Number inmates.	Space allotted each. (In cubic feet.)	Number giving evidence of successful vaccination.	Number who can read and write.
Franklin	very good	6	*			very good	28	*		
Gaston	well kept					well kept				
Gates										
Graham										
Granville.....	good	11				good	31			
Greepe	good	8	600	0	6	good	6	1,000	4	2
Gulford										
Halifax.....		22		3	6		43		4	6
Harnett										
Haywood	no change	9		0	6	no change	3		0	0
Henderson										
Hertford										
Hyde										
Iredell		37 (a)					25			
Jackson										
Johnston	good	6	1,000		4	good	13	1,000		
Jones										
Lenoir	good	1					0			
Lincoln.....	fair	5	*	0	3	fair	22	600	12	6
McDowell										
Macon	good	2	*		2	good	8	675		5
Madison.....	crowded†	17		4	8	good	20		10	16
Martin.....	fair	4	*	0	2	fair	13	*	4	4
Mecklenburg ...	good	190 (d)				good	58			
Mitchell	fair	2				fair	6			
Montgomery....	very good	8	500			very good	17	500		
Moore										
Nash										
New Hanover ..		26 (b)	400	5	22	good	24	*	20	5
Northampton ..	good	6	1,000	0	3	good	32	800	8	12
Onslow	good	10				good	5			
Orange	not good	4	500	2	4	good	23	1,000	15	10
Pamlico										

* Space exceeds 1,000 cubic feet. † See Summary of Reports from County Superintendents of Health. (a) Includes 27 in House of Correction. (b) Includes 10 in House of Correction. (d) Includes 107 in House of Correction.

Condition of Jails and County Homes by Counties.—CONTINUED.

COUNTIES.	JAIL.					HOME.				
	General Sanitary Condition.	Number Prisoners confined.	Space allotted each, (in cubic feet.)	Number giving evidence of successful vaccination.	Number who can read and write.	General Sanitary Condition.	Number inmates.	Space allotted each, (in cubic feet.)	Number giving evidence of successful vaccination.	Number who can read and write.
Pasquotank.....		1	*				27	*		
Pender.....	fair	2		0	0	fair	5		0	0
Perquimans.....		0				good	7			4
Person.....		7		1	2		9		9	2
Pitt.....	good	16	*		4	good	30	*		2
Polk.....	good†	4	*	2	3		0			
Randolph.....		3					30			
Richmond.....	good	22	*	0	12	fair	24	*	4	8
Robeson.....										
Rockingham.....										
Rowan.....										
Rutherford.....		8					12			
Sanipson.....	very good	4				very good	21			
Stanly.....	good	1	*	0	1	good	8	*	0	1
Stokes.....	good	8	600	1	0	good	12	600	3	4
Surry.....		6 (a)	350		2		21	*	1	2
Swain.....	good	7				good	4			
Transylvania..	only fair	1	*	0	1	only fair	4	*	0	0
Tyrrell.....										
Union.....	fair	11				fair	25			
Vance.....	good	6	*	2	1	very good	16	*	2	2
Wake.....	†	87 (b)				good	65			
Warren.....	very good	1		1	1	very good	22		3	2
Washington.....										
Watauga.....	good	2				good	8			
Wayne.....	good	7			5	good	18			3
Wilkes.....	no change	7				no change	10			
Wilson.....	good	13				good	18			
Yadkin.....	fair	2		0	1	good	21		0	7
Yancey.....	very good	4				no change	3			

* Space exceeds 1,000 cubic feet. † See Summary of Reports from County Superintendents of Health. (a) Includes 1 in House of Correction. (b) Includes 55 in House of Correction.

Mortuary Report for November, 1896.

TOWNS AND REPORTERS.	RACES.	POPULA- TION.		TEMPORARY ANNUAL DEATH RATE PER 1,000.		Typhoid Fever.	Scarlet Fever.	Malarial Fever.	Diphtheria.	Whooping Cough.	Measles.	Pneumonia.	Consumption.	Brain Diseases.	Heart Diseases.	Neurotic Diseases.	Diarrhoeal Diseases.	All Other Dis-ases.	Accident.	Suicide.	Violence.	TOTAL DEATHS.		Still Born.
		By Races.	Total.	By Races.	Total.																	By Races.	By Towns.	
Asheville.....	White.	8,000		16.5																		11		
Dr. E. C. Starnes.	Colored.	4,000	12,000	15.0	16.0																	5	16	
CHARLOTTE	White.	10,855		9.9																		9		3
C. A. Spratt, H. Off'r	Colored.	8,796	19,651	16.4	12.8																	12	21	4
Durham.....	White.	4,000		15.0																		5		
Dr. J. M. Manning.	Colored.	2,000	6,000	0.0	10.0							1	2		1			1				0	5	
FAYETTEVILLE	White.	3,500		17.1																		5		3
Dr. J. V. McGougan.	Colored.	2,500	6,000	19.2	18.0			2				1	1					3				4	9	
GOLDSBORO	White.	3,700		13.0																		4		
T. H. Bain, Sec. B. H.	Colored.	1,700	5,400	14.1	13.3										1			1	2			4	6	
GREENSBORO	White.	5,500		6.5									1	1								3		
J. S. Michaux, City Clk	Colored.	2,500	8,000	19.2	10.5													1				4	7	3
HENDERSON	White.	2,250		5.3												1						1		
Dr. W. J. Judd.	Colored.	2,000	4,250	12.0	8.5													1	1			2	3	2
HILLSBORO	White.	400		0.0																		0		
Dr. D. C. Parriss.	Colored.	300	700	0.0	0.0																	0	0	
JACKSONVILLE	White.	150		0.0																		0		
Dr. E. L. Cox.	Colored.	100	250	0.0	0.0																	0	0	
LENOIR	White.	800		0.0																		0		
Dr. A. A. Kent.	Colored.	300	1,100	0.0	0.0																	0	0	
MONROE	White.	1,800		0.0																		0		
Dr. J. M. Blair.	Colored.	600	2,400	30.0	5.0																	1	1	
OXFORD	White.	1,500		8.0																		1		
Dr. T. L. Booth.	Colored.	1,000	2,500	24.0	14.4	1																2	3	
RALEIGH	White.	7,200		5.0																		3		
T. P. Sale, Clerk B. H.	Colored.	6,000	13,200	24.0	15.5			1				2		2	1			1	8			14	17	1
ROCKY MOUNT	White.	1,600		7.5																		1		
Dr. G. L. Wimberley.	Colored.	800	2,400	0.0	5.0	1																0	1	
SALEM	White.	3,942		6.1																		2		
P. C. Butner, H. Off'r	Colored.	342	4,284	0.0	5.6	1													1			0	2	
SALISBURY	White.	3,500		0.0																		0		
Dr. John Whitehead.	Colored.	1,500	5,000	40.0	12.0								2		1							5	5	1
SCOTLAND NECK	White.	775		0.0																		0		
Mayor J. A. Perry.	Colored.	425	1,200	0.0	0.0																	0	0	
SOUTHPORT	White.	800		15.0									1									1		1
E. B. Stevens, City Clk.	Colored.	400	1,200	0.0	10.0																	0	1	
TARBORO	White.	1,300		36.9										1		1						4		
Dr. L. L. Staton.	Colored.	1,200	2,500	0.0	19.2														2			0	4	
WASHINGTON	White.	3,000		8.0									1		1							0		
Dr. Joshua Tayloe.	Colored.	2,500	5,500	0.0	4.4																	2		
WELDON	White.	700		51.4																		3		2
Mayor J. T. Gooch.	Colored.	750	1,450	48.0	49.6	1		1				1							1			3	6	
WILMINGTON	White.	9,000		10.7									1	3	1		1	1	1			8		2
Dr. J. C. Shepard.	Colored.	13,000	22,000	13.8	12.5	2							2		1		2	7	1			15	23	4
WILSON	White.	2,500		14.4																		3		1
Dr. N. Anderson.	Colored.	2,000	4,500	12.0	13.3								1						1			2	5	
WINSTON	White.	5,200		9.2									1	1		2						4		
Dr. John Bynum.	Colored.	4,800	10,000	22.5	15.6								2	2	1		2					9	13	3

N. B. The reporters for the cities and towns printed in bold faced type have signed this certificate. I hereby certify that this report gives the whole number of deaths occurring within the corporate limits during the above month.

*All visitors.

METEOROLOGICAL SUMMARY FOR NORTH CAROLINA, NOV., 1896.

Furnished by the North Carolina Section of the Climate and Crop Service.
C. F. VON HERRMANN, DIRECTOR.

STATIONS.	TEMPERATURE, (DEGREES FAHR.)									Total Precipitation. (in inches)	NO. OF DAYS.				Prevailing Wind.
	Monthly Mean.	Highest.	Date.	Mean Maximum.	Lowest.	Date.	Mean Minimum.	Monthly Range.	Mean Daily Range.		Clear.	Partly Cloudy.	Cloudy.	Rainy.	
Asheville.....	50.8	73	11	62.8	21	30	38.9	52	23.9	5.57	16	5	9	10	S
Beaufort.....	61.5	75	7	69.5	36	14	53.5	39	16.0	2.58	20	2	8	7	S W
Biltmore.....	50.5	74	17	63.4	22	30	37.6	52	25.9	5.57	14	6	10	8	S
Charlotte.....	55.6	75	27	64.9	33	30	46.4	42	18.5	3.67	11	10	9	7	S
Chapel Hill.....	55.0	79	27	66.8	29	15	43.9	50	22.9	3.09	14	9	7	6	S W
Horse Cove.....	59.8	69	19	59.0	23	9	42.7	46	16.3	12.15	12	6	12	11	S E
Littleton.....	53.5	77	27	64.7	24	14	42.3	53	22.4	2.33	8	7	12	8	S W
Lenoir.....	51.4	72	19	60.2	30	15	44.8	42	15.4	6.61	13	5	12	6	W
Louisburg.....	54.2	77	11	66.0	27	15	42.5	50	23.5	2.85	.....	.....	.....	6	.....
Mt. Airy.....	51.4	74	19	62.5	24	15	40.3	50	22.2	7.05	10	10	10	7	S W
Mt. Pleasant.....	55.5	76	19	66.3	27	14	44.7	49	21.6	4.61	10	3	17	7	S W
Marion.....	54.8	77	19	67.3	26	14	42.3	51	25.0	9.60	13	8	9	11	E
Newbern.....	61.1	86	12	73.0	36	15	53.2	50	19.8	1.52	6	17	7	6	.....
Oak Ridge.....	53.6	74	19	64.4	29	14	42.7	45	21.7	4.44	18	6	6	8	S W
Pittsboro.....	53.2	77	12	64.3	26	15	42.2	51	22.1	4.73	17	5	8	5	S E
Raleigh.....	55.3	79	12	65.7	29	30	44.9	50	20.8	2.50	14	9	7	7	S W
Rockingham.....	57.6	80	27	69.1	30	15	46.0	50	23.1	3.94	14	9	7	5	.....
Roxboro.....	54.2	77	27	65.6	26	30	42.8	51	23.8	3.65	13	5	12	6	.....
Soapstone Mount.....	53.0	83	25	69.4	21	15	36.7	62	32.7	4.39	6	19	5	5	S W
Saxon.....	53.2	76	18	65.6	25	14	40.8	51	24.8	5.29	8	10	12	9	S W
Southern Pines.....	59.6	80	11	70.4	32	30	48.7	48	21.7	4.89	20	4	6	6	S
Salisbury.....	55.9	79	1	67.0	31	14	44.8	48	22.2	4.35	.....	.....	.....	6	.....
Tarboro.....	55.6	82	11	69.4	26	14	41.7	56	27.7	4.94	15	4	10	7	E
Willeton.....	54.5	80	11	66.2	27	15	42.8	53	23.4	3.80	14	2	14	5	S
Weldon.....	52.9	78	11	65.8	25	14	40.0	53	25.8	1.79	15	8	7	7	S
Wilmington.....	60.2	80	11	69.6	33	30	50.7	47	18.9	3.52	15	9	6	5	N

State Meteorological Summary for November, 1896.

Mean barometer 30.25 inches; normal for November 30.14. Highest barometer 30.66 on the 23d at Raleigh. Lowest barometer 29.77 on the 5th at Charlotte. Mean temperature 54.8 degrees; normal for November 49.7. Highest temperature 86 on the 12th at Newbern. Lowest temperature 15 on the 9th at Highlands. Average rainfall 4.67 inches; normal for November 3.43 inches. Greatest monthly rainfall 12.15 inches at Horse Cove; least monthly rainfall 1.52 inches at Newbern. Average number of clear days 14; partly cloudy 7; cloudy 9; rainy 7. Prevailing wind direction Southwest. Average velocity 7.1 miles per hour. Normal direction for November, Northeast; normal velocity 7.5 miles per hour. The month was the warmest November on record during the past 25 years. There was also a large excess of precipitation in the west.

BULLETIN

OF THE

NORTH CAROLINA BOARD OF HEALTH.

Published Monthly at the Office of the Secretary of the Board, at Raleigh, N. C.

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VOL. XI.

JANUARY, 1897.

No. 10.

THE INFECTIONOUSNESS OF MILK.

By Richard H. Lewis, M. D., Secretary North Carolina Board of Health.

(Read at the Charlotte Health Conference.)

Of all food products milk is the only one which is absolutely essential to the life of man. In the economy of nature it is his sole support in the most critical period of his existence, *i. e.*, at its beginning, when his vital machinery is most easily thrown out of balance. But while it is indispensable in infancy it also occupies a most important place in man's dietary through life, particularly with children and invalids, and very properly, for it is the only single article of diet that is a complete food in itself. If it can be shown, therefore, that it is frequently the carrier of disease, it is easy to understand and appreciate the tremendous importance of the subject we have under consideration.

Before taking up the subject proper it would, perhaps, not be amiss to consider for a moment what we mean by the "infectiousness of milk." The word "infect" is derived from the

Latin "*inficere*, to put in, or corrupt," and means "to communicate or transmit the specific virus or germs of disease." It goes without saying that pure milk in itself is not infectious. We mean by the infectiousness of milk that it is the medium of transmission to man of the specific virus or germs of disease when itself becomes contaminated therewith. And it constitutes a most excellent medium for such transmission because it is a rich "culture medium," as the bacteriologists say, for the growth of the various germs which cause disease. The object of our inquiry, therefore, will be:

1. How these disease-producing germs get into milk, and the best way to prevent it; and,

2. Not being able to prevent their entrance into milk, the best way of killing them, and at the same time leave the milk in good condition as a food.

In the limited time at my disposal I can treat the subject only in the most general way, and must omit a great mass of extremely interesting obser-

vations which have been recorded, but I will try to be as clear and practical as possible.

We will first consider what may be called the general infection of milk as contradistinguished from the specific—its contamination with pure filth, so to speak, in which there is no specific disease germ. Every housekeeper in this audience has observed, at one time or another, in pouring out milk which has been standing some time in a pan or pitcher, a dark sediment at the bottom. This sediment is composed of several ingredients, but it is chiefly particles of manure which have fallen into the milk pail from the udder, teats and flank of a dirty cow. Although this filth will not cause any particular disease, of itself, it assists in the development in the milk, under certain conditions, of most virulent poisons by supplying more food for the bacteria, which generate the poisons, to feed on.

Diseased cows may transmit through their milk diseases of various forms, not the specific disease with which they are suffering, but certain "upsettings" of the human constitution. This is especially the case when the seat of the disease is the udder. The most common of these diseases is what is called garget, or inflammation of the bag, in which the milk becomes lumpy, stringy and mixed with pus or "matter." As bearing on this point, and illustrating to what extent the scientific enthusiasm of some men will carry them, I will give one instance. A Dr. Brush produced artificially a case of garget by bruising one quarter of the udder of his cow. The milk from this quarter was of the character above mentioned and alkaline, while that from the other three-quarters was apparently healthy and acid. "After four days he gave his

own child, 16 months old, 4 ounces of this acid, but otherwise normal appearing milk, at 5 o'clock P. M. The child fell asleep, but in two hours awakened, crying apparently with stomach ache, and was kept awake till past midnight, during which time a large amount of acid was voided per rectum. The next day the bowels were slightly disturbed, and the doctor asks, What would be the condition of the child had it been fed continuously on such milk?"

Improper feeding will also produce such changes in the milk as to disorder the digestive apparatus of infants. It is a fact, well known to mothers, that too free an indulgence in fruit and vegetables on their part will often upset the nursing babe. And so it is with the milk of cows feeding on certain weeds, cabbage, turnip tops, swill or other fermented food. The very interesting and mysterious disease known as milk-sickness or "the trembles," which is met with in our own mountains, is supposed by some to be caused by cows eating poison-oak, though it has not been yet demonstrated. Whatever the cause of this disease may be, it seems to exist in certain circumscribed localities, which are known in some instances and kept fenced off from the pastures. I would refer those interested in this subject to a valuable paper by Dr. J. Howell Way, of Waynesville, the intelligent and efficient Superintendent of Health of Haywood county.

The specific diseases transmitted through milk are typhoid fever, diphtheria, scarlet fever and tuberculosis, or consumption, and cholera.

That typhoid fever is communicated to man by means of infected milk has been thoroughly demonstrated. A sudden outbreak of the disease among

those obtaining their milk from the same dairy has suggested that as the cause, and investigation has shown the contamination. As many as 138 epidemics of milk typhoid have been tabulated. The cow does not convey the germ to the milk herself, except, possibly, by drinking, or, more likely, wading in polluted water and infecting the udder, but the poison is introduced after the milk is drawn. This may be done by the infected hands of a miker who has been nursing a case of typhoid or who has a "walking" case himself, but generally it is by washing the utensils or deliberately watering the milk with infected water—typhoid fever being almost invariably a water-born disease.

The diphtheria and scarlet fever poison is also usually introduced into the milk from the outside, the disease prevailing in the families of the dairymen or others who handle the milk, but there is evidence to support the view that they are sometimes attributable to the milk of cows having inflammatory or ulcerative affections of the udder. In such affections the presence of certain microbes known as streptococci and staphylococci has been demonstrated, and, according to Drs. Busey and Kober, there are many reasons for believing that some cases of diphtheria and scarlet fever, or diseases that cannot be clinically differentiated from them, are caused by infection with these cocci. It also seems to be a fact that the most malignant forms of diphtheria nearly always show this cocci infection as well as that with the specific diphtheria bacillus.

Tuberculosis.—The mere statement of the established facts that one-seventh of all deaths are due to tuberculosis, and that cows are very subject

to this disease, identical with that found in man, is sufficient to show the very great importance of studying the milk in this connection. To give you some idea of the prevalence of tuberculosis among cows I will read a few statistics. In 1885 15 per cent. of the cattle slaughtered at Leipsic were tubercular; at Stolp, 20 per cent.; Bromberg, 26 per cent., while at Berlin the percentage was much higher. Of 67,077 cattle butchered at Leipsic during the years 1888—91, 20.4 per cent. were tubercular. In this country Dr. Ernest, of Massachusetts, on the evidence of thirty-nine veterinarians representing seventeen States and reporting on 3,000 cattle, gives 18 per cent. tubercular and 8 per cent. suspicious. Dr. De Schweinitz, of our own State, now connected with the Bureau of Animal Industry at Washington, says that in many cases from 50 to 70 per cent. of the dairy herds examined were found to be infected, and in one of these 50 per cent. had tuberculosis of the udder. The statistics of other countries show a similar state of affairs.

The presence of tubercle bacilli in milk was first demonstrated by Virchow and Koch in 1882, and their observations have since been confirmed by many bacteriologists. That the disease generally in the slower forms, which are commonly spoken of as scrofula, is transmitted through the milk of tuberculous cows to children previously healthy and without hereditary taint, has been conclusively shown by numerous investigators. Just a half century ago, long before bacteria or bacilli were ever thought of in this connection, a wide-awake German professor, Dr. Klencke, of Leipsic, proved this fact by his obser-

vations on 16 previously healthy children who were fed on milk from four cows in the same dairy, all of which were affected with a "scrofulous tuberculous" disease, as revealed by post-mortem examinations. The children all developed marked symptoms of scrofula very soon after beginning the use of this milk, and most of them showed signs of improvement upon a change to healthy milk and recovered. While some hold that the milk is never infected unless there be local tubercular disease of the udder, there seems to be little doubt that it also occurs in cases of general tuberculosis when there is no apparent involvement of the upper. But, however that may be, there is no doubt about the fact that tuberculosis is communicated to man through the milk of diseased cows, and remembering the terrible nature of the malady, that should be sufficient to put us on our guard.

As cholera is an exotic disease, fortunately rare in our country, it is only necessary to say that its method of transmission through milk is practically identical with that of typhoid fever.

In the transmission of these particular diseases that I have mentioned, the milk acts merely as the vehicle for conveying the germs to the body. Having once obtained an entrance they fasten upon the tissue suitable for their development, as, for example, the typhoid fever germ on certain little glands in the small intestine, the tubercle bacillus on various tissues, though most commonly upon the lungs, and the diphtheria and scarlet fever germs upon the throat. They then reproduce themselves with great rapidity, elaborating in process of growth each its particular toxine or poison, which

is absorbed into the circulation and causes the symptoms characteristic of the disease. But there are other bacteria of many varieties, belonging to the general class, which causes putrefaction in organic matter and which are found everywhere, that infect milk and elaborate therein certain virulent poisons. Let me illustrate the manner in which this poison is developed by a familiar example. Everybody knows that if you leaven bread and keep it in a warm place it will rise, though everybody may not know why it rises. It is accomplished in this way: Yeast is a microscopic plant and may be called a first cousin of the bacteria, which are also microscopic plants, oval in shape and about 3-1,000 of an inch in diameter. It propagates by budding. A little daughter-cell comes out from the side of the mother-cell, and when large enough, so to speak, to take care of herself (which she becomes in an incredibly short time) she cuts loose from her parent and immediately proceeds to sprout daughters of her own. In this process of growth the saccharine substance upon which it feeds is separated into two different chemical elements—carbonic acid gas or carbon dioxide, as they call it nowadays, and alcohol. You "infect" your dough with the yeast germs, keep it warm so that they may develop the gas which in its efforts to escape lightens the mass, and when it reaches the proper point put it in the oven. The heat of cooking kills the yeast germs and there is no further development of gas—the bread has been "sterilized," as we scientific men say. Just so it is with the bacteria we are now considering. They get into milk, which is the right kind of soil for them, as dough is for the yeast plant that is allowed to re-

main warm enough for their growth, and by their development separate certain substances in the milk upon which they feed into other chemical elements that we know to be poisonous to man. One of these milk poisons has been discovered. In 1883 4 about 300 people were taken violently sick in Michigan from eating cheese, with vomiting, purging, and great prostration—symptoms very much like those of cholera morbus—and the board of health of that State requested Dr. Victor C. Vaughan, the brilliant professor of hygiene and physiological chemistry in the University at Ann Arbor to investigate the matter. He did so and found the cause to be a poison of bacteriological origin, though he did not succeed in settling upon the particular bacterium. He afterwards found the same poison in milk. Finding it first in cheese he named it "tyrotoxicon" (cheese-poison). Dr. Vaughan thinks this tyrotoxicon is the cause of cholera infantum and that others similar though less energetic poisons derived from other varieties of bacteria produce enterocolitis, the summer diarrhoea of infants. We know that these diseases only occur in summer, and that bacteria will not grow in a temperature under 60 degrees. It is these two diseases which cause such fearful mortality among children, particularly in our large cities, owing to the transportation of the milk long distances through the heat, thereby affording favorable conditions for the development of these toxicogenic or poison-producing bacteria.

To give you some idea of the extent of this infant mortality, I will impose a few more statistics upon you. According to the general mortuary reports,

about 40 per cent. of all deaths occur under 5 years of age. That these deaths may reasonably be referred to milk as the cause, in a large proportion of the cases, is more than probable. The following analysis of the mortuary report of Chicago for the month of August, which does not materially differ from those of other large cities, supports this view. In a population of 1,750,000 the total deaths were 2,201. Of this number 1,087, or 48 per cent. were under 5 years of age, 75 under 1 year and 330 between 1 and 5, while between 5 and 10, after they had passed the milk stage, there were only 65 deaths. Fifty-four per cent. of the deaths under 1 year were due to diarrhoeal diseases, 50 per cent. between 1 and 5, and only 3 per cent. between 3 and 10.

We now come to the practical part of our subject. How can we prevent these disease-producing germs from getting into our milk? Or, failing in that, how can we destroy them without seriously injuring the milk as a food?

In regard to the specific germs which cause consumption, typhoid fever, diphtheria and scarlet fever, it can only be done by thorough inspection and control of all dairies supplying milk to the public by municipal or other health authorities empowered by law to enforce the necessary rules. These rules may be briefly summarized under: Healthy cows supplied with good food and pure water; perfect cleanliness of the hands of the milkers, of the udders of the cows and of all milk utensils; and rigid abstention from contact with the milk at any point of all persons who have been exposed to infectious diseases. I regret to say that I am afraid that public sentiment

in North Carolina is not yet sufficiently educated for this, but I hope that this progressive city will set the example.

When it comes to keeping the toxicogenic or poison-producing bacteria—those which cause cholera infantum and the summer diarrhoea of infants, with their dreadful mortality—out of the milk, it is practically impossible, for the reason that they are floating round everywhere. But if we cannot keep them out we can keep them in abeyance and prevent their forming the poisons which cause the diseases, and much more easily than we can secure obedience to the rules suggested for protection against the specific bacteria. You remember that these bacteria do not flourish in a temperature under 60 degrees, and that if they do not grow they will not produce the poison—that it is not the bacteria themselves, but their toxins or poisons which are to be dreaded, and that these are formed in the milk and not in the tissues of the body, as are the toxins of the specific germs. This being true, you will see at once that the whole thing is summed up in the one word, coolness. If milk is immediately cooled down to 60 degrees or lower, and kept there until used, there would be little necessity for apprehension of the poisoning of our hand-fed babies. But unfortunately in this warm climate of ours, with the lack of ice and of cold springs, this is not easily done even by most individuals keeping their own cow, and, of course, it is still less feasible for dairies delivering milk to the public. So that it is always safest, in summer, to assume that the milk intended for infants, unless we are positively certain that its temperature has not at any time gone above 60, is in-

fectured, and to act accordingly. The question now is: How can we destroy the bacteria and prevent the formation of the poisons with the least possible injury to the food qualities of the milk?

This can be done by heat. Boiling the milk will effectually kill the bacteria, but a better plan is to sterilize it by steam in one of the sterilizers which can be gotten for you by any druggist for a small sum. Both of these methods, however, change the taste of the milk and somewhat impair its nutritive qualities, but as Dr. Vaughan forcibly says: "The risk in using unsterilized milk is too great, and the question with the parent or physician is not, 'Am I giving the child the best food?' but, 'Am I giving it a poison?' The choice is easily made when the matter is looked at in this light." But the best method of rendering the milk safe is by what is known as Pasteurization, which is the application of just enough heat to kill the bacteria without altering the taste or the nutritive qualities of the milk to any very appreciable extent. It has been ascertained that exposure to a temperature of about 155 degrees for a half hour will practically sterilize milk. As soon as the Pasteurizing is finished the milk should be rapidly cooled and put in a refrigerator, or, in the absence of ice, kept in the coldest water available until used. I show you an excellent contrivance for the low-temperature Pasteurization of milk, designed by Dr. Freeman, the pathologist to the Foundling Hospital and to St. Mary's Hospital for Children in New York, which can be easily operated and can be bought for about \$3. If you cannot get a Pasteurizer for any reason, you might sterilize the milk by this method, after a crude fashion,

which would certainly be better than nothing, in this way: Take a clean bottle that has been scalded, fill it with the milk, stop it loosely with raw cotton, (germs cannot pass through cotton, as Tyndall proved,) set it in a narrow, high tin bucket and fill this bucket up to the neck of the bottle with ordinary cool water; set this bucket, with the top off, in a larger tin bucket that has two inches of boiling water at its bottom; put the top of the big bucket on at once and set it aside on a table out of a draught and let it stand for three-fourths of an hour. Then remove and set the small bucket in a tub of cold water and change the water in the tub every fifteen minutes for three times, after which take the bottle out and put it away in the coolest place you have, taking care not to remove the cotton plug until the milk is needed for use. But it is much the best plan to get a Pasteurizer if you can.

Notwithstanding the necessarily hurried and incomplete treatment of the subject, I trust that I have shown to your satisfaction that four of our most dreaded diseases, tuberculosis, typhoid fever, scarlet fever and diphtheria are sometimes transmitted to man through the instrumentality of milk; that milk often becomes poisonous for the want of the proper care in warm weather, and that this poisonous milk is the agency most responsible for "the slaughter of the innocents" which we witness every summer; and finally, that it is of the greatest importance that you should spare no pains to guarantee the purity and safety of the milk furnished your families, more especially your little ones.

In conclusion, I desire to acknowledge my great indebtedness in the preparation of this paper to the very

complete and admirable report on "Morbific and Infectious Milk," by Drs. Busey and Kober, published in the last report of the health officer of the District of Columbia and to the most excellent article on "Diarrhoeal Diseases" by Dr. Vaughan in the "American Text-Book of the Diseases of Children."

DISCUSSION.

Dr. Lewis asked Dr. Whitehead to state to the audience some experience that was reported to him, not resting apparently on scientific evidence, which is very suggestive and interesting, on the cows transmitting typhoid fever by drinking milk. Dr. Whitehead said:

"The circumstance Dr. Lewis refers to was this: There was a gentleman who lived some distance from one of our towns, some ten or eleven miles, who had several cases of fever in his family. On investigation it was found that every one who had typhoid fever had been drinking milk from a cow that had been separated from the rest of the cattle. It had been turned into an old lot where there was all kinds of filth, and there was an old spring there. The supposition was that this cow drank water from this spring, and in this way, or by the cow wading in the water, or by the water passing through the body of the cow, the consequence was those who drank the milk from the cow had typhoid fever.

"There is another instance where a cow had been turned into a lot where ran a sewer. This cow drank this putrid water day after day, week after week, and month after month.

"Different members of the family were stricken with typhoid fever. Upon investigation it was found that

the members who drank milk from this cow were those who had fever, while other members of the same family, not drinking that milk, did not have the fever. After the death of this cow there was no more typhoid fever in the family."

Dr. Lewis then said he would like Dr. Kinyoun to give a personal instance of the value of the Pasteurizing apparatus.

Dr. Kinyoun congratulated the audience on the excellent paper Dr. Lewis had presented, and said: "I rise merely to state an instance in which I believe the Pasteurization or sterilization of milk has been of service in my family. For three years and a half I have insisted on all the milk used in our family being sterilized in one of these apparatus (shown by Dr. Lewis). We were getting milk from a dairyman living outside of Washington. One morning he was missing. We did not think anything of that, but day after day passed, and upon inquiry of the man delivering the milk he said he was sick at home with typhoid fever.

"How long has he had it?"

"He was taken sick about ten days ago. His wife also has typhoid fever." I asked, 'Has his wife been away from home?' 'No; she has not been off the place,' admitting that she had not got ten typhoid fever from somewhere else. Immediately the question was asked in our family, 'Shall we abandon the milkman and get milk from another place?' I said, 'No; we have been exposed to the infection for three weeks and have no typhoid fever.' Upon inquiry, I found upon this milkman's route there were five cases of typhoid fever, and it was traced to the milk. Herein is this apparatus extremely simple, it does not re-

quire an extraordinary knowledge to handle it, an ordinary cook can fill an ordinary bottle with milk and do it just as well as yourself.

"I believe if I had not used this precaution, described in your hearing, some of my family would have had typhoid fever. I have advised all my friends to use some such apparatus. The beauty of it is this: It does not change the quality of the milk; very slightly, if any at all. The digestive property of the milk as taken from the cow remains the same, whereas in boiled milk it is exceedingly changed. It has another beauty. It removes the animal odor about it, which is very disagreeable to many persons."

Summary of Reports from County Superintendents of Health for December, 1896,
(Eighty counties reporting).

In the blanks on which these reports are made the following items are called for:

1. The number of cases of small-pox, measles, whooping cough, scarlatina, diphtheria, typhoid fever, pernicious malarial fever, hemorrhagic malarial fever, yellow fever and cholera which have occurred in the county during the past month.

2. The diseases which have been prevalent in the county, and in what parts.

3. Epidemics among domestic animals.

4. Remarks as to special unsanitary conditions in the county.

In few counties do physicians generally report these details to the Superintendent, though furnished with blanks for that purpose, and in most cases he has to depend upon himself alone in making his report.

Details as to the jails, houses of correction, and county homes are also given in these reports and will be found tabulated on other pages.

ALAMANCE—Dr. R. A. Freeman, Burlington. No diseases reported.

ALEXANDER—Dr. T. F. Stevenson, Taylorsville. One case of typhoid fever.

ALLEGHANY—Dr. Robt. Thompson, Sparta. Pneumonia and la grippe in all parts.

ASHE—Dr. L. C. Gentry, Crumpler. Not much sickness except influenza and pneumonia arising therefrom, and it seems to effect those portions of the county formerly attacked by typhoid fever.

BEAUFORT—Dr. Joshua Tayloe, Washington. Pneumonia in many parts.

BERTIE—Dr. H. V. Dunstan, Windsor. Slight bronchial and catarrhal diseases in all portions; an epidemic of hog cholera.

BLADEN—Dr. Newton Robinson, Elizabethtown. No diseases to report.

BRUNSWICK—Dr. D. I. Watson, Southport. A few cases of pneumonia.

BUNCOMBE—Dr. E. C. Starnes, Asheville. No diseases reported.

BURKE—Dr. J. L. Laxton, Morganton. Coughs and colds in nearly all parts.

CABARRUS—Dr. Robert S. Young, Concord. Six cases of whooping cough, one of diphtheria, and four of typhoid fever. Influenza in all parts.

CALDWELL—Dr. A. A. Kent, Lenoir. Whooping cough, 200; scarlatina, 2; typhoid fever, 4. A severe epidemic of influenza broke out in the town about the 20th. It is now more wide-

spread and general than the epidemic of 1890.

CAMDEN—No Board of Health.

CARTERET—Dr. George N. Smith, Beaufort. Malarial and bronchial troubles in some parts.

CASWELL—Dr. W. O. Spencer, Yanceyville. Very little sickness except colds.

CATAWBA—Dr. D. McD. Yount, Newton. A few cases of measles; whooping cough, 150; typhoid fever, 3; pernicious malarial fever, 1; hemorrhagic fever, 1.

CHATHAM—Dr. J. B. Matthews, Pittsboro. No diseases reported. Epidemic of hog cholera.

CHEROKEE—Dr. J. F. Abernathy, Murphy. Two hundred cases of whooping cough. La grippe has made its advent among us, some 20 or 25 bad cases, nearly allied to pneumonia; no deaths. Whooping cough and mumps have abated. An epidemic of distemper among horses.

CHOWAN—Dr. R. H. Winborne, Rockyhook. Four cases of typhoid fever. A few slight bronchial troubles.

CLAY—Dr. W. E. Sanderson, Hayesville. One case of typhoid fever. Influenza in nearly all parts.

CLEVELAND—Dr. O. P. Gardner, Shelby. Grippe in all parts.

COLUMBUS—Dr. I. Jackson, Whiteville. Three cases of typhoid fever. Very little sickness.

GRAVEN—Dr. J. W. Duguid, Newbern. La grippe and pneumonia in all parts. Hog cholera is prevailing extensively in western part of the county.

CUMBERLAND—Dr. J. Vance McGowan, Fayetteville. Six cases of whoop-

ing cough. Hemorrhagic malarial fever in some parts.

CURRITUCK—No Board of Health.

DARE—Dr. W. B. Fearing, Manteo. No diseases reported.

DAVIDSON—Dr. John Thames, Lexington. Pneumonia and bronchitis in all parts.

DAVIE—Dr. James McGuire, Mocksville. Rubella in some parts.

DUPLIN—Dr. J. C. Grady, Magnolia. Very little sickness in the county.

DURHAM—Dr. John M. Manning, Durham. Some pneumonia.

EDGECOMBE—Dr. L. L. Staton, Tarboro. No diseases reported.

FORSYTH—Dr. E. F. Strickland, Bethania. Pneumonia in some parts. Very little sickness.

FRANKLIN—Dr. E. S. Foster, Louisburg. Two cases typhoid fever. Less sickness than known for a long time.

GASTON—Dr. J. H. Jenkins, Dallas. Mumps and severe colds in all parts. A few cases typhoid fever and pneumonia.

GATES—No Board of Health.

GRAHAM—No Board of Health.

GRANVILLE—Dr. T. L. Booth, Oxford. Four cases of scarlatina.

GREENE—Dr. Joseph E. Grimsley, Snow Hill. Pneumonia, catarrhal affections and rheumatism in some parts. Little sickness.

GUILFORD—Dr. W. J. Richardson, Greensboro. Bronchial and malarial troubles have prevailed in Greensboro.

HALIFAX—Dr. I. E. Green, Weldon. One case of scarlatina. Generally healthy in the county.

HARNETT—No Board of Health.

HAYWOOD—Dr. J. Howell Way,

Waynesville. Five cases of diphtheria; five of typhoid fever; catarrhal diseases quite prevalent.

HENDERSON—Dr. B. L. Asheworth, of Hendersonville, has been elected Superintendent of Health.

HERTFORD—Dr. John W. Tayloe, Union. One case of typhoid fever. Very little sickness of any kind.

HYDE—No Board of Health.

IREDELL—Dr. W. J. Hill, Statesville. Colds and mumps.

JACKSON—No report.

JOHNSTON—Dr. R. J. Noble, Selma. No diseases reported.

JONES—No Board of Health.

LENOIR—Dr. James M. Parrott, Kinston. Pneumonia and bronchitis in all parts. An epidemic of hog cholera.

LINCOLN—Dr. Thos. F. Costner, Lincolnton. Ten cases of whooping cough, typhoid fever, six, and remittent fever have prevailed in southern part.

McDOWELL—Dr. Geo. I. White, Marion. Whooping cough in central part.

MACON—Dr. S. H. Lyle, Franklin. No diseases reported.

MADISON—Dr. Jas. K. Hardwicke, Marshall. La grippe has prevailed in a large portion. Twenty cases of whooping cough and seven of typhoid fever.

MARTIN—Dr. W. H. Harrell, Williamston. No report.

MECKLENBURG—Dr. H. M. Wilder, Charlotte. Two cases of scarlatina and three of diphtheria.

MITCHELL—Dr. C. E. Smith, Bakersville. No diseases to report.

MONTGOMERY—Dr. W. A. Simmons, Troy. No diseases to report.

MOORE—Dr. Gilbert McLeod, Carthage. No report.

NASH—Dr. J. J. Mann, Nashville. Very little sickness.

NEW HANOVER—Dr. J. C. Shepard, Wilmington. Six cases of typhoid fever. Catarrhal and malarial diseases.

NORTHAMPTON—Dr. H. W. Lewis, Jackson. Very little sickness.

ONSLOW—Dr. E. L. Cox, Jacksonville. One case of hemorrhagic malarial fever. Health of county good.

ORANGE—Dr. D. C. Parris, Hillsboro. Several cases of measles and whooping cough; one of typhoid fever; respiratory diseases.

PAMLICO—No Board of Health.

PASQUOTANK—Dr. J. E. Wood, Elizabeth City. Pneumonia and catarrhal fever to some extent.

PENDER—Dr. Geo. F. Lucas, Currie. One case of typhoid fever. Bronchial troubles have prevailed in many portions.

PERQUIMANS—Dr. C. C. Winslow, Winfall. One case of whooping cough. Influenza in all parts. Three cases of pneumonia. Hog cholera in all parts of the county.

PERSON—Dr. J. A. Wise, Roxboro. Measles still prevails.

PITT—Dr. Frank W. Brown, Greenville. A few cases of typhoid fever. Malarial diseases, chiefly mild.

POLK—Dr. C. J. Kenworthy, Tryon. No diseases reported.

RANDOLPH—Dr. T. T. Ferree, Ashboro. Health of the county unusually good.

RICHMOND—Dr. W. H. Steele, Rockingham. Three cases of typhoid fever.

ROBESON—Dr. T. A. Norment, Jr., Lumberton. No diseases reported.

ROCKINGHAM—No report.

ROWAN—Dr. John Whitehead, Salisbury. Mumps, tonsillitis, bronchitis.

RUTHERFORD—Dr. E. B. Harris, Rutherfordton. Catarrhal affections.

SAMPSON—Dr. Jno. A. Stevens, Clinton. Whooping cough very prevalent. A few cases of pneumonia. Typhoid and malarial fevers. An epidemic of hog cholera.

STANLY—Dr. D. P. Whitley, Millington. Ten cases of typhoid fever. La grippe and bronchial troubles.

STOKES—Dr. W. L. McCanless, Danbury. Influenza.

SURRY—Dr. John R. Woltz, Dobson. Two cases of typhoid fever.

SWAIN—Dr. A. M. Bennett, Bryson City. No epidemic of any kind.

TRANSYLVANIA—Dr. M. M. King, Brevard. Distemper in horses.

TYRRELL—No report.

UNION—Dr. J. E. Ashcraft, Monroe. Twenty cases of whooping cough, two of scarlatina, five of diphtheria, six pernicious, eight hemorrhagic malarial fever. Catarrhal troubles in some parts.

VANCE—Dr. J. H. Tucker, Henderson. Influenza, bronchitis, pneumonia, and a few cases of typhoid fever in the county. No epidemic among domestic animals reported.

WAKE—Dr. P. E. Hines, Raleigh. One case of whooping cough, one of typhoid fever, one of hemorrhagic malarial fever. Bronchitis, pneumonia and colds in all parts.

WARREN—Dr. Geo. A. Foote, Warrenton. No diseases except colds.

WASHINGTON—Dr. W. H. Ward, of Plymouth, has been elected Superintendent of Health by the Board of County Commissioners.

WATAUGA—Dr. W. B. Councill, Boone. Six cases of diphtheria, ten of typhoid fever. Hog cholera in one part.

WAYNE—Dr. W. J. Jones, Jr., Goldsboro. Catarrhal diseases in all parts. Dr. W. J. Jones, Jr., has resigned and moved to Wilson, N. C., and Dr. W. J. Jones, Sr., has been elected to fill his place.

WILKES—Dr. J. M. Turner, Wilkesboro. Four cases of typhoid fever. Influenza in nearly all parts.

WILSON—Dr. N. Anderson, Wilson. No diseases reported.

YADKIN—Dr. T. R. Harding, Yadkinville. No diseases reported.

YANCEY—Dr. J. L. Ray, Burnsville. No diseases reported.

Review of Diseases for December, 1896.

BRONCHITIS. — From Bertie, Burke, Carteret, Caswell, Chowan, Davidson, Guilford, Iredell, Lenoir, Orange, Pender, Rowan, Rutherford, Stanly, Vance, Wake, Wayne—17.

CHOLERA, in Hogs.—From Bertie, Chatham, Craven, Lenoir, Perquimans, Sampson, Watauga—7.

DIPHTHERIA.—Cabarrus, Haywood, Mecklenburg, Union, Watauga.

DISTEMPER, in Horses.—Cherokee, Transylvania.

INFLUENZA.—Alleghany, Ashe, Cabarrus, Caldwell, Cherokee, Clay, Cleveland, Craven, Madison, Perquimans, Stanly, Vance, Wake, Wilkes—14.

MALARIAL FEVER.—Carteret, Catawba, Guilford, Lincoln, New Hanover, Pitt, Sampson—7.

MALARIAL FEVER, HEMORRHAGIC.—Catawba, Cumberland, Onslow, Union, Wake—5.

MALARIAL FEVER, PERNICIOUS.—Catawba, Craven, Union.

MEASLES.—Catawba, Orange, Person.

MUMPS.—Gaston, Iredell, Rowan.

PNEUMONIA.—Alleghany, Beaufort, Brunswick, Davidson, Durham, Forsyth, Gaston, Greene, Pasquotank, Vance, Wake—11.

RHEUMATISM.—Greene.

RUBELLA.—Davie.

SCARLATINA.—Caldwell, Granville, Halifax, Mecklenburg, Union.

TONSILLITIS.—Rowan.

TYPHOID. — Alexander, Cabarrus, Caldwell, Catawba, Chowan, Clay, Columbus, Franklin, Gaston, Haywood, Hertford, Lincoln, Madison, New Hanover, Orange, Pender, Pitt, Richmond, Sampson, Stanly, Surry, Vance, Wake, Watauga, Wilkes—25.

WHOOPIING COUGH. — Cabarrus, Caldwell, Cherokee, Cumberland, Lincoln, McDowell, Madison, Orange, Perquimans, Sampson, Union, Wake—12.

Summary of Mortuary Reports for December, 1896. (Twenty-six towns.)

	White.	Col'd.	Total.
Aggregate population.....	84,672	60,363	145,035
Aggregate deaths.....	80	87	167
Representing annual death rate per 1000.....	11.3	17.1	13.8
<i>Causes of Death.</i>			
Typhoid Fever.....	3	3	6
Malarial Fever.....	2	3	5
Diphtheria.....	2	0	2
Whooping Cough.....	1	0	1
Measles.....	0	3	3
Pneumonia.....	10	8	18
Consumption.....	14	15	29
Brain diseases.....	6	3	9
Heart diseases.....	4	6	10
Neurotic diseases.....	0	1	1
Diarrheal diseases.....	8	6	14
All other diseases.....	30	33	63
Accident.....	0	6	6
	80	87	167
Deaths under 5 years.....	14	27	41
Still-born.....	6	9	15

Condition of Jails and County Homes by Counties for December, 1896.

COUNTIES.	JAIL.					HOME.				
	General Sanitary Condition.	Number Prisoners confined.	Space allotted each. (In cubic feet.)	Number giving evidence of successful vaccination.	Number who can read and write.	General Sanitary Condition.	Number inmates.	Space allotted each. (In cubic feet.)	Number giving evidence of successful vaccination.	Number who can read and write.
Alamance.....		21 (a)					36			
Alexander.....	very good	2				very good	10			2
Alleghany.....		3					7			
Anson.....										
Ashe.....		4	600		1		9	500	1	2
Beaufort.....	good	8				good	16			
Bertie.....	very good	17 (b)			15	very good	13		2	5
Bladen.....	good	2				good	4			
Brunswick.....		1					9			
Buncombe.....		98 (c)					36			
Burke.....		10					17			
Cabarrus.....	good	48 (d)	872	6	24	good	28	*	12	12
Caldwell.....		5			4		4			2
Camden.....										
Carteret.....		0					0			
Caswell.....	fair	1				fair	31			
Catawba.....	well kept	8	860	2	3	well kept	40	*	12	13
Chatham.....	very clean	11	*			very clean	24	*		3
Cherokee.....	good	12				good	4			
Chowan.....		6		0			6		0	0
Clay.....		0					0			
Cleveland.....	good	18				good	23			
Columbus.....	good	6	*		6	good	9	*		
Craven.....		14					22			
Cumberland.....		15					18			
Currituck.....										
Dare.....		0					0			
Davidson.....	good	4				good	31			
Davie.....	fair	0				fair	9		2	1
Duplin.....	good	2	450		1	good	16	500	2	3
Durham.....		46 (e)	629				21	*		
Edgecombe.....						good	21		8	7
Forsyth.....	good	37	1,000	5	8					

* Space exceeds 1,000 cubic feet. (a) Includes 15 in House of Correction. (b) Includes 10 in House of Correction. (c) Includes 67 in House of Correction. (d) Includes 24 in House of Correction. (e) Includes 16 in House of Correction.

Condition of Jails and County Homes by Counties.—CONTINUED.

COUNTIES.	JAIL.					HOME.				
	General Sanitary Condition.	Number Prisoners confined.	Space allotted each. (in cubic feet.)	Number giving evidence of successful vaccination.	Number who can read and write.	General Sanitary Condition.	Number inmates.	Space allotted each. (in cubic feet.)	Number giving evidence of successful vaccination.	Number who can read and write.
Franklin	very good	6	*			very good	28	*		
Gaston	good					good				
Gates										
Graham										
Granville	good					good	32			
Greene	very good	5	600	0	3	very good	6	1,000	6	3
Guilford	improved	59 (a)				good	39			
Halifax		16		2	9		50		5	7
Harnett										
Haywood		5					3			
Henderson										
Hertford	no change	11	*			no change	9	*		2
Hyde										
Iredell	no change	38 (b)				no change	26			
Jackson										
Johnston		10	1,000				15	*		
Jones										
Lenoir		4								
Lincoln	good	4	*	2	1	good	21	600	12	6
McDowell										
Macon	good	3	*		2	good	8	675		5
Madison	good	24	350	7	10	good	20	400	9	13
Martin										
Mecklenburg	good	171 (d)					58			
Mitchell	bad	3				very good	6			
Montgomery	very good	3	500			very good	18	500		
Moore										
Nash	good	8	600	3	8	good	27	1,000	4	1
New Hanover		27 (c)	300	4	16	good	21	*	18	5
Northampton	good	8	1,000	0	2	good	38	900	10	8
Onslow	good	7				good	5			
Orange	not good	3	500	1	2	good	19	1,000	14	7
Pamlico										

* Space exceeds 1,000 cubic feet. (a) Includes 43 in House of Correction. (b) Includes 28 in House of Correction. (c) Includes 5 in House of Correction. (d) Includes 144 in House of Correction.

Condition of Jails and County Homes by Counties.—CONTINUED.

COUNTIES.	JAIL.					HOME.				
	General Sanitary Condition.	Number Prisoners confined.	Space allotted each (in cubic feet.)	Number giving evidence of successful vaccination.	Number who can read and write.	General Sanitary Condition.	Number inmates.	Space allotted each (in cubic feet.)	Number giving evidence of successful vaccination.	Number who can read and write.
Pasquotank.....	fair	2	*	0	0	fair	28	*	0	0
Pender.....	fair	0	.....	0	0	fair	5	.....	0	0
Perquimans.....	good	3	.....	.....	.....	good	6	.....	.....	4
Person.....	good	5	.....	.....	1	good	13	.....	9	2
Pitt.....	good	15	*	.....	3	good	30	*	.....	3
Polk.....	good	4	.....	1	3	.....	.....	.....	.....	.....
Randolph.....	.....	8	.....	7	.....	.....	34	.....	.....	6
Richmond.....	fair	28	543.6	0	21	fair	24	*	0	8
Robeson.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Rockingham.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Rowan.....	.....	18	400	3	7	.....	21	500	7	.....
Rutherford.....	.....	9	.....	.....	.....	.....	14	.....	.....	.....
Sampson.....	good	4	.....	.....	.....	good	21	.....	.....	.....
Stanly.....	good	0	.....	.....	.....	good	8	.....	0	2
Stokes.....	good	7	600	2	3	good	12	600	3	4
Surry.....	.....	13 (a)	320	.....	8	.....	20	.....	.....	3
Swain.....	good	8	400	0	7	good	4	700	1	0
Transylvania.....	.....	1	*	0	0	.....	4	*	.....	.....
Tyrrell.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Union.....	good	19	.....	.....	.....	good	35	.....	.....	.....
Vance.....	fair	10	*	2	4	very good	16	*	2	2
Wake.....	crowded	100 (b)	.....	.....	.....	good	65	.....	.....	.....
Warren.....	good	3	.....	1	1	good	23	.....	2	3
Washington.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Watauga.....	good	4	.....	.....	.....	good	8	.....	.....	.....
Wayne.....	good	9	.....	.....	.....	good	16	.....	.....	.....
Wilkes.....	.....	6	.....	.....	.....	.....	9	.....	.....	.....
Wilson.....	fair	12	.....	.....	.....	fair	18	.....	.....	.....
Yadkin.....	good	1	.....	.....	1	good	21	.....	.....	5
Yancey.....	very good	1	*	0	1	no change	2	.....	.....	.....

* Space exceeds 1,000 cubic feet. (a) Includes 1 in House of Correction. (b) Includes 54 in House of Correction.

Mortuary Report for December, 1896.

TOWNS AND REPORTERS.	RACES.	POPULATION.		TEMPORARY ANNUAL DEATH RATE PER 1,000.		Typhoid Fever.	Scarlet Fever.	Malarial Fever.	Diphtheria.	Whooping Cough.	Measles.	Pneumonia.	Consumption.	Brain Diseases.	Heart Diseases.	Neurotic Diseases.	Diarrhoeal Diseases.	All Other Diseases.	Accident.	Suicide.	Violence.	By Races.	By Towns.	TOTAL DEATHS. Deaths under 5 years.	
		By Races.	Total.	By Races.	Total.																				
Asheville.....	White.	8,000	12,000	19.5	13.0							2	9		1	1					13	0	13		
Dr. E. C. Starnes.	Colored.	4,000		0.0																		0			
CHARLOTTE.....	White.	10,855	19,651	4.4	7.32	1							1									4		12	
C. A. Spratt, H. Om'r	Colored.	8,796		11.0		1							4		2			1				7			
Durham.....	White.	4,000	6,000	0.0	0.0																0	0	0		
Dr. J. M. Manning.	Colored.	2,000		0.0																	0	0			
FAYETTEVILLE.....	White.	3,500	6,000	17.4	16.0				3	1		1	1	1	1	1					5	3	8	1	
Dr. J. V. McGougan.	Colored.	2,500		14.4																	2	3		1	
GOLDSBORO.....	White.	3,700	5,400	12.9	15.6		1					1	1			2					4	1	2		
T. H. Bain, Sec. B. H.	Colored.	1,700		21.2		1						1						1			3	1	2		
GREENSBORO.....	White.	5,500	8,000	2.2	13.5							1									1	9			
J. S. Michaux, City Clk	Colored.	2,500		28.4									3	1				4			2	9		2	
HENDERSON.....	White.	2,250	4,250	10.7	16.9																2	6	1		
Dr. W. J. Judd.	Colored.	2,000		24.0								2						2			2	6	1		
JACKSONVILLE.....	White.	150	250	0.0	0.0																0	0			
Dr. E. L. Cox.	Colored.	100		0.0																	0	0			
LENOIR.....	White.	800	1,100	15.0	21.8	1															1	2			
Dr. A. A. Kent.	Colored.	300		40.0										1							1	2			
MARION.....	White.	800	1,000	0.0	0.0																0	0			
Dr. G. I. White.	Colored.	200		0.0																	0	0			
MONROE.....	White.	1,800	2,400	0.0	10.0								1								0	2			
Dr. J. M. Blair.	Colored.	600		40.0														1			2	2			
OXFORD.....	White.	1,500	2,500	8.0	9.6																1	2	1		
Dr. T. L. Booth.	Colored.	1,000		12.0														1			1	2	1		
RALEIGH.....	White.	7,200	13,200	18.33	18.9			1				1	1	3	1		4				11	20	4		
T. P. Sale, Clerk B. H.	Colored.	6,000		18.0								1	1		1		5	1			9	20	1		
ROCKINGHAM.....	White.	1,500	1,750	0.0	0.0																0	0			
Dr. W. H. Steele	Colored.	450		0.0																	0	0			
ROCKY MOUNT.....	White.	1,600	2,400	7.5	10.0																1	2			
Dr. G. L. Wimberley.	Colored.	800		15.0								1									1	2			
SALEM.....	White.	3,942	4,284	15.21	22.4										1		4				5	8	1		
P. C. Butner, H. Om'r	Colored.	342		105.3											1		2				3	8			
SALISBURY.....	White.	3,500	5,000	24.0	19.2							1	2		4						7	1	8	1	
Dr. John Whitehead.	Colored.	1,500		8.0														1			1	1			
SCOTLAND NECK.....	White.	775	1,200	15.6	10.0													1			1	0	1	1	
Mayor J. A. Perry.	Colored.	425		0.0																	0	1			
SOUTHPORT.....	White.	800	1,200	0.0	10.0																0	1			
E. B. Stevens, City Clk.	Colored.	400		30.0														1			1	1			
TARBORO.....	White.	1,300	2,500	27.7	24.0									1			3				3	5			
Dr. L. L. Staton.	Colored.	1,200		20.0																					
WARRENTON.....	White.	1,000	1,500	12.0	8.0													1			0	1			
Dr. Geo. A. Foote.....	Colored.	500		0.0																	0	1			
WASHINGTON.....	White.	3,000	5,500	12.0	24.0								1			1	1				3	11	1		
Dr. Joshua Tayloe.	Colored.	2,500		38.4									1	1		2	3	1			8	1	2		
WELDON.....	White.	700	1,450	17.1	24.8																1	3	1		
Mayor J. T. Gooch.	Colored.	750		32.0																	2	3			
WILMINGTON.....	White.	9,000	22,000	14.7	16.9							4	1		2	4					11	31	3		
Dr. J. C. Shepard.	Colored.	13,000		17.7		1						3	4		1		1	9	1		20	1	6		
WILSON.....	White.	2,500	4,500	0.0	2.7																0	1	1		
Dr. N. Anderson.	Colored.	2,000		6.0														1			1	1			
WINSTON.....	White.	5,200	10,000	15.5	16.8	1			2			1						1			5	14	1		
Dr. John Bynum.	Colored.	4,800		22.5									4		1		1	1	2		9	14	2		

N. B. The reporters for the cities and towns printed in large type have signed this certificate "I hereby certify that this report gives the whole number of deaths occurring within the corporate limits during the above month." *

METEOROLOGICAL SUMMARY FOR NORTH CAROLINA, DEC., 1896.
 Furnished by the North Carolina Section of the Climate and Crop Service.
 C. F. VON HERRMANN, DIRECTOR.

STATIONS.	TEMPERATURE, (DEGREES FAHR.)									Total Precipitation. (in inches)	NO. OF DAYS.				Prevailing Wind.
	Monthly Mean.	Highest.	Date.	Mean Maximum.	Lowest.	Date.	Mean Minimum.	Monthly Range.	Mean Daily Range.		Clear.	Partly Cloudy.	Cloudy.	Rainy.	
Asheville.....	38.6	65	7	50.5	10	25	26.8	55	23.7	0.84	20	7	4	4	N
Beaufort.....	47.2	68	14	56.4	23	25	38.0	45	18.4	5.77	15	4	12	9	N
Charlotte.....	41.6	68	11	50.0	18	4	33.2	50	16.8	1.87	18	14	9	6	N E
Chapel Hill.....	39.0	68	13	49.7	11	4	28.2	57	21.5	2.23	19	5	7	6	W
Edenton.....	41.4	64	8	49.5	16	4	33.4	48	16.1	1.96	19	4	8	4	.....
Henderson.....	39.6	69	7	49.7	12	4	29.4	57	20.3	2.85	17	7	7	5	N
Hatteras.....	46.1	64	15	51.2	27	24	41.0	37	10.2	5.59	13	8	10	8	N
Louisburg.....	37.4	63	14	48.4	9	4	26.5	54	21.9	2.91	.....	.....	.....	3	.....
Lenoir.....	38.1	62	10	47.5	15	25	30.8	47	16.7	1.80	19	3	9	4	N E
Monroe.....	41.5	65	14	52.5	5	4	30.5	60	22.0	2.37	17	2	12	6	W
Moncure.....	39.6	66	10	51.5	10	5	27.7	56	23.8	1.68	17	9	5	7	N
Mt. Airy.....	37.4	64	10	49.3	11	26	25.6	53	23.7	1.22	17	10	4	2	S W
Mocksville.....	42.2	71	11	53.8	15	5	30.7	56	23.1	1.54	14	13	4	6	S W
Newbern.....	48.5	72	11	57.8	24	25	38.3	48	19.5	4.29	10	12	9	6	.....
Oak Ridge.....	38.9	66	10	49.0	12	14	28.8	54	20.2	1.67	18	7	6	5	W
Pittsboro.....	37.9	68	8	49.5	6	4	26.3	62	23.2	1.94	21	4	6	5	N E
Raleigh.....	40.4	65	7	49.4	17	25	31.4	48	18.0	1.84	16	6	9	7	N
Roxboro.....	38.2	65	14	48.5	7	4	27.9	58	20.6	2.01	18	4	9	3	.....
Rockingham.....	41.7	67	7	54.1	11	4	29.3	56	24.8	2.29	19	5	7	4	N
Southport.....	46.3	67	8	55.8	19	25	36.8	48	19.0	4.14	10	13	8	9	N
Salisbury.....	40.9	68	11	50.8	12	5	31.0	56	19.8	1.50	.....	.....	.....	3	.....
Selma.....	40.0	65	14	50.0	15	5	30.0	50	20.0	4.75	.....	.....	.....	4	.....
Saxon.....	37.4	66	31	48.6	8	4	26.3	58	22.3	0.58	14	12	5	2	N W
Tarboro.....	39.8	67	18	53.2	6	4	26.3	61	26.9	4.33	18	5	8	6	N
Weldon.....	38.3	63	8	48.7	8	4	27.9	55	20.8	3.91	15	8	8	6	N
Wilmington.....	45.7	70	7	55.0	21	25	36.5	49	18.5	3.22	15	13	6	10	N

State Meteorological Summary for December, 1896.

Mean barometer 30.25 inches; normal for December 30.17. Highest barometer 30.83 on the 25th at Raleigh. Lowest barometer 29.38 on the 15th at Hatteras. Mean temperature 40.6 degrees; normal for December 42.8. Highest temperature 73 on the 10th at Soapstone Mount. Lowest temperature 4 on the 25th at Highlands. Average rainfall 2.51 inches; normal for December 3.82 inches. Greatest monthly rainfall 5.77 inches at Beaufort; least monthly rainfall 0.58 inches at Saxon. Average number of clear days 16; partly cloudy 7; cloudy 8; rainy 5. Prevailing wind direction North. Average hourly velocity 7.5 miles per hour. Normal direction for December Northeast; normal velocity 7.6 miles per hour. The snowstorm of the 2d covered the State to an average depth of 5 inches.





BULLETIN

OF THE

NORTH CAROLINA BOARD OF HEALTH.

Published Monthly at the Office of the Secretary of the Board, at Raleigh, N. C.

GEO. G. THOMAS, M. D., *Pres.*,.....Wilmington.
S. WESTRAY BATTLE, M. D.,.....Asheville.
W. H. HARRELL, M. D.,.....Williamston.
JOHN WHITEHEAD, M. D.,.....Salisbury.

W. P. BEALL, M. D.,.....Greensboro.
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PROF. F. P. VENABLE,.....Chapel Hill.
J. C. CHASE, CIV. ENG.,.....Wilmington.

RICHARD H. LEWIS, M. D., *Secretary and Treasurer*, Raleigh.

VOL. XI.

FEBRUARY, 1897.

No. 11.

Public Water Supplies and Their Purification.

BY JOHN C. CHASE, ENGINEER OF THE BOARD.

The character of the water furnished for public use is a matter of the highest importance to all concerned, and it is hardly necessary to say that the source of supply should be above reproach. Yet such is the general public indifference that were it not for the never ending missionary work of the physician and sanitarian our land would stand a fair chance of devastation by filth diseases that would rival the death-dealing plagues of former times.

The completion of a system of water works, the source of supply being a satisfactory degree of purity, is too often considered as a final settlement of the water question. So far as the public health is concerned, a polluted water supply is likely to be more detrimental than the former supply drawn from local wells, for these would be likely to be of varying degrees of badness and a general epidemic of sickness would hardly be likely to ensue. How-

ever, this should not be considered as a valid reason for continuing to rely on the wells, but rather as an incentive to labor for a higher standard of purity in the public works.

To consider the question from a financial standpoint solely, no city can afford to tolerate a water supply that is known or suspected to be detrimental to the health. The loss of time, which is money, caused by the resulting sickness, the expenses of nurses and medical attendance, the loss to the community by death of actual or prospective wage earners, soon amounts in the aggregate to a sum far in excess of that required to secure and maintain a water supply of unquestioned purity.

One typhoid patient poisoned the water supply of Plymouth, Pa., in 1885. There were over 1,100 cases of fever in a population of 8,000, and 104 deaths resulted. A careful calculation showed that the care of the sick and the loss of wages by those who recovered amounted to \$97,120. Those who died were annual wage earners to the extent of \$18,420.

These startling figures need no elab-

oration or explanation; they speak for themselves.

Comparatively few persons in any community have a realizing sense of the necessity of maintaining perfect sanitary conditions about every public water supply. Until a growing sanitary sentiment controls a majority of the votes needed to elect the governing officials of our cities and towns, we are destined to be subject to the rule of those who do not see the wisdom, even from a business point of view, of doing everything within reason to raise the standard of public health. It is certainly within bounds to say that any public officer who passively allows, without protest even, the continued use of a polluted source of water supply, is morally responsible for the natural resulting consequences.

Not less difficult of solution is the question of securing a satisfactory supply of water when the ownership of the water works is corporate instead of municipal. In that case we have a commercial condition to deal with in addition to the sanitary indifference before mentioned. We shall undoubtedly be told that the consumer's interest is the company's interest, and that the company cannot afford to furnish that which the consumer does not desire or approve of, but if we get behind the scene we shall more than likely hear the consumer being told that he is hypercritical, and that if he is not satisfied with the fluid that is being dispensed to him he is not obliged to take it, but can procure his supply elsewhere, if he can.

The recent suit against the water works officials of Duluth, Minn., to recover damages for a death by typhoid fever, which, it is claimed, was caused by the impure condition of the water

supply, is a radical move in the right direction. It will have a tendency to develop a feeling of responsibility in the minds of the officials, and, we trust, lead to a more careful oversight of water supplies.

Some one has said that the wrecking of savings banks and thieving by the employees of the postal service, were two crimes that could not be punished too severely, as a large majority of the victims had no way of protecting themselves from loss. The furnishing of an impure supply of water, by either indifference or negligence, is worthy of a place in the category of crimes above-mentioned, and we see no good reason why an offense that menaces health and life should receive a lighter penalty than one against property alone.

The development and growth of the water works business, if it may be so termed, has been almost phenomenal. In 1870, there were only 243 systems of public supply in the United States. Now it is safe to say that there are in the neighborhood of 2,800, representing an aggregate outlay of \$200,000,000.

A quarter of a century ago, a city of less than 25,000 inhabitants hardly dreamed of a public water supply; now, scarce a hamlet but what aspires to have this great convenience, which has passed from the domain of luxury almost into that of necessity.

In the State of Massachusetts, 154 of the 353 cities and towns have water works; every place with a population of over 4,500 being supplied, and only 11, with a population exceeding 3,000, being unprovided.

Perhaps it is not too much to assume that this somewhat abnormal growth of the business has been no small factor in creating a demand for improving the condition of the supply.

In the more thickly settled sections of the country, it is getting to be no easy matter to procure a supply of satisfactory quality within a reasonable distance.

The earlier enabling acts for the construction of water works passed by the Massachusetts Legislature, specified "*fresh*" water: later ones called for "*soft*" water: then came a period of "*pure*" water, until the supply was exhausted, and now they simply call for "water." There is food for reflection for us in the question as to what we are getting. Is it *fresh*, *soft* and *pure*, or merely water? If ignorance is bliss, perhaps the inquiry should not be pressed.

The Metropolitan water supply has recently been inaugurated for the benefit of Boston, and the neighboring towns within a radius of ten miles. An expenditure of some \$20,000,000 is contemplated, the supply being obtained from a distant water-shed that is practically free from pollution, and whose ultimate limits will furnish the supply that will be required a hundred years hence. It is only a question of time when the same course will have to be taken by the other large centers of population in our country. The source of supply may be placed in two general classes, surface and ground water. The surface supplies are derived from lakes and ponds, running streams, or the impounded waters of those whose usual flow is not sufficient in quantity to supply the daily demand in the driest season.

Natural lakes or ponds usually afford the most desirable supply, and if situated at a distance from habitations, or in an uninhabited territory, the water is generally of good quality and reasonably free from actual or prospective

pollution. Still it is not safe to assume that once pure always pure, and the only certain way of keeping track of the condition of the supply is to have frequent and regular analysis, both chemical and bacteriological.

It is the unexpected which always happens, and there are several instances where a first-class supply has been seriously polluted by the filth of a single family. A noted sanitarian well says:

"No one point in sanitary science has been more conclusively proved than that a given water supply may be safe to-day and dangerous to-morrow, and safe again a week later. It is not in the water, but in that which the water transports that the danger lies. A sudden shower may foul the wayside spring. A picnic party may cause the contamination of a mountain brook."

When the supply is drawn from a running stream that receives the household and mechanical wastes of another center of population, we are confronted with a state of affairs that calls for vigorous condemnation. It is a well defined condition, not a theory.

There is very often a variance of opinion regarding the actual status of some particular source of supply, when it may not be practicable to show that it is positively deleterious to health. Interested parties will be prone to belittle any objections that may be raised, and very often will dispute evidence that should pass uncontradicted.

It is a well-settled standard that waters that can be shown to contain any substance that is deleterious to health are unfit for domestic use. The determination of this fact is the province of the water analyst, and his final decision must be authoritative.

It is also proper to require that the

supply shall have no offensive associations or characteristics, although they may be matters of sentiment rather than fact. Boating, bathing and fishing in the bodies of water from which the supply is drawn would come under this head. Of course, the smaller the body, the greater the objection, both as a matter of sentiment and fact. The turbid waters of streams are also objectionable on the same score, even though they contain nothing more detrimental than the earthy matter held in suspension, which is removed to a great extent by sedimentation before it reaches the consumer.

The highly colored waters of the South Atlantic Coast can be placed in the same category, although they may contain nothing that is really objectionable.

The prevailing sentiment requires a colorless, odorless, and tasteless water supply, of a proper degree of purity. While such a supply in its natural state may not be easily obtainable, the improved means of purification now available make the requirement one that can be and should be satisfied.

Ground water supplies are obtained from springs or wells of different types, the natural filter-gallery, so-called, being virtually an enlarged well. These supplies are usually of good quality, and are practically nothing but filtered surface water. Geological conditions play an important part in settling the question of securing supplies of this nature, and comparatively few are thus derived. The water very often possesses a degree of hardness that is tolerated because nothing better can be had.

Supplies drawn from wells are not always free from danger of pollution. If the wells are shallow and located at

no great distance from contaminating influences, an excessive draft, which, sooner or later, is very likely to ensue, will cause practically the same pollution that would be found in a surface supply in the same locality. A case of this kind has recently come under the writer's observation.

Artesian well supplies are generally free from organic contamination, but usually carry in solution an amount of mineral water that renders them unsatisfactory for general use. There are notable exceptions, it is true, but a very small per cent. of the water supplies of the country are obtained in this manner, and the geological conditions in many localities preclude the idea of any great increase in the number.

Where a supply of a satisfactory quality is not available, or the existing supply has become contaminated, the question of purification becomes a vital one. In the early days of water works construction, comparatively little attention was given to the purity of the supply. A single analysis was usually made, and if the result showed that the supply was of a satisfactory quality the question was considered settled for all time. Bacteriology and nitrification, like the telephone and electric light, had hardly begun to occupy the realm of the imagination, and the only purification of public water supplies considered necessary was the removal of matter held in suspension, as in the case of turbid rivers. This was usually done in an imperfect manner by sedimentation in large settling basins.

The halcyon days of blissful ignorance have gone, never to return, and now the sanitarian does not feel satisfied as to the condition of the supply

unless it is analyzed several times a year. We confidently expect, however, that the discovery of a successful way to eliminate all known pathogenic bacteria will only be the signal for the advent of others equally detrimental to health.

The filter beds that are in general use in Europe never flourished on American soil. In fact, the subject of filtration has received comparatively little attention on this side of the water until within a very few years, and at the present time there are in the United States less than 1 per cent. as many users of filtered water as are found in European cities.

Several attempts were made to procure supplies from natural galleries adjacent to large streams, but the results were far below the expectations, and it was generally found that the supply obtained came from ground water intercepted on its way to the stream, instead of from the river itself. This method has been generally abandoned altogether or supplemented by other devices.

Within a few years a growing sentiment in favor of purification by filtration has taken root, and many supplies are now being filtered whose original condition was much superior to that of many now in use whose quality has never been questioned.

Filtration in general is not a matter of experiment, so far as the results are concerned, but purely one of cost, which is by no means prohibitive.

It is perhaps too much to expect the general adoption in this country of the elaborate and costly devices that are used to such an extent in European practice. We have, however, thanks to American ingenuity, several varieties of apparatus known as mechanical

filters. While the devotee of filtration in its strict sense would be inclined to resent that name as applied to the devices, holding that strainers would be a more appropriate term, considering the speed with which the water is passed through them, the fact cannot be disputed that they have, as a class, done efficient work and are fully entitled to the name of filter, which, in its broad sense, is a water purifier.

Their efficiency is largely increased by the use of some coagulating agent, commercial alum being the substance most generally employed, although lime and ferric salts are sometimes used. The function of the coagulant is to form by decomposition a gelatinous precipitate which draws together and surrounds the suspended matter present in the water, and by increasing the bulk makes it much more easily removed. This type of filter, using coagulants, has been very successful in removing bacteria, and the opinion is ventured that it will be the only type of filter that is commercially available for water works systems of small sizes. The large and wealthy cities can well afford the expense of the costly structures of English and continental practice, but the salvation of the smaller systems of this country will undoubtedly depend upon the mechanical filter.

We may note, however, that several cities of good size in the South and West are firm believers in the merits of mechanical filtration, notable examples being Atlanta, Chattanooga and Knoxville. There is one well-settled principle in filtration, and that is that it must be done at the fountain-head. We cannot afford to have a polluted water supply for general use, and trust to the integrity and intelligence of the

ordinary house servant to keep the filters in running order and see that an unpolluted drinking water is supplied. The one omission may be the death-warrant of some loved one, and unavailing regrets for careless inattention to a specific duty bring not back the departed.

An outbreak of typhoid fever in a Massachusetts city was traced to the drinking of the impure river water. Irreproachable water from the city supply was in the factory, but the carelessness or indifference of the help led some of them to use the river water because it happened to be a little more convenient.

The recent investigation of the Massachusetts State Board of Health relative to intermittent filtration are of profound interest and great importance.

The investigation has extended over a period of several years, and is not yet concluded. The usual type of bed filter has been used, but the principle has been developed that the intermittent application of the fluid to be filtered produced the best results. The filtering material thus has a chance to drain, and becoming thoroughly aerated, the tendency to nitrify and destroy organic life becomes stronger, and under proper conditions the bacteria die more much rapidly in the aerated sand. This method was originally designed for the treatment of sewage, but the results were so successful that the city of Lawrence decided to construct a filter plant on this plan for the purification of the city supply. A filter bed with an area of $2\frac{1}{2}$ acres has been in operation for some three years, and the mortality from typhoid fever has been decreased 40 per cent., at least one-half of which can be credited to the filter.

The practical results of purifying a polluted water by filtration are shown by the experience of Hamburg and Altona in the cholera epidemic of 1892.

The water supply of Altona is polluted to an unusual extent, the river Elbe at that point carrying the crude sewage of three-fourths of a million people; yet such was the efficiency of its filters that they scarcely felt the effect of the cholera, which made such ravages in Hamburg. The natural conditions in Hamburg were far superior to those in Altona, as the Altona intake was below the sewage outfalls of both cities, while the Hamburg supply was contaminated by neither, only being subject to the natural pollution of the stream before it reached the city.

Altona's supply was filtered while Hamburg's was not. The sacrifice of over 8,000 lives was a dear object lesson; but if "the blood of the martyr is the seed of the church," they died not in vain, for Hamburg now has an efficient filtration plant, with the result that the death rate is the lowest ever known.

A few words about the water supplies of our own State may not be out of place at this time. Of the 16 systems, three draw their supplies from artesian wells, a deep well and springs; two use the ponded water of small streams, one of which has built a filter well which undoubtedly has, and will continue to have for some time to come, a more or less beneficial effect upon the supply. The other one would probably be improved by like treatment, although the existence of any pollution is not apprehended. The other supplies are surface waters from streams of varying size and character, the most of them not being above suspicion, and all of them in their natural state being susceptible of great improvement, cer-

tainly so far as appearances are concerned.

Eight of this class are supplied with filters of the mechanical type which certainly improve the looks of the supply.

We note with pleasure the marked increase of interest in improving the quality of the supplies, whatever may be its inciting cause, three of the filters having been installed within two years.

As to the quality of the work done, "that is another story," as Kipling says, and I am not in a position to speak with authority. Suffice it to say that the installation of filters is only a means towards an end, and upon their intelligent operation depends the success of the venture. An uncared for filter may become a prolific source of disease.

To sum up:—the large majority of our public water supplies are of uncertain or suspicious character. In the natural course of events they will grow worse instead of better. However, with a growing sentiment requiring a higher standard of purity, it is perhaps not too much to predict that a generation hence the purification of public supplies by filtration will become well nigh universal, and that the sanitarian of that day will be able to chronicle as great an advance in the purification of water supplies as the past twenty years have shown in their development.

Summary of Reports from County Superintendents of Health for January, 1897
(Sixty counties reporting).

In the blanks on which these reports are made the following items are called for:

1. The number of cases of small-pox, measles, whooping cough, scarlatina,

diphtheria, typhoid fever, pernicious malarial fever, hemorrhagic malarial fever, yellow fever and cholera which have occurred in the county during the past month.

2. The diseases which have been prevalent in the county, and in what parts.

3. Epidemics among domestic animals.

4. Remarks as to special unsanitary conditions in the county.

In few counties do physicians generally report these details to the Superintendent, though furnished with blanks for that purpose, and in most cases he has to depend upon himself alone in making his report.

Details as to the jails, houses of correction, and county homes are also given in these reports, and will be found tabulated on other pages.

ALAMANCE—Dr. R. A. Freeman, Burlington. A few cases of whooping cough. La grippe and pneumonia in all parts. The jail is unsafe, but is being repaired.

ALEXANDER—Dr. T. F. Stevenson, Taylorsville. La grippe.

ALLEGHANY—Dr. Robt. Thompson, Sparta. One case of diphtheria. Grip, pluritis and pneumonia in all parts; the grip more severe than ever before.

ANSON—Dr. E. S. Ashe, Wadesboro. No report.

ASHE—Dr. L. C. Gentry, Crumpler. Influenza in all parts, proving very fatal, especially among the aged.

BEAUFORT—Dr. Joshua Tayloe, Washington. No disease to report.

BERTIE—Dr. H. V. Dunstan, Windsor. La grippe in many parts. An epidemic of hog cholera.

BLADEX—Dr. Newton Robinson,

Elizabethtown. Grip in mild form in all parts.

BRUNSWICK — Dr. D. I. Watson, Southport. No disease to report.

BUNCOMBE—Dr. E. C. Starnes, Asheville. Two cases of diphtheria.

BURKE—Dr. J. L. Laxton, Morganston. La grippe and colds in all parts. More room is needed at the Home.

CABARRUS—Dr. Robert S. Young, Concord. Epidemic of la grippe in all parts. The jail has been overcrowded and unclean for the past month, but having been practically emptied last week it will at once be thoroughly washed and disinfected.

CALDWELL—Dr. A. A. Kent, Lenoir. Whooping cough (100 cases) in all parts. The epidemic of influenza has been very general, but is now abating. Three cases of typhoid fever and six of pneumonia. The Board of County Commissioners has asked the Legislature to pass an act allowing the county to levy a special tax for the purpose of building a new jail. We need it and hope to get it.

CAMDEN—No Board of Health.

CARTERET—Dr. George N. Ennett, Beaufort. Broncho catarrhal troubles in all parts.

CASWELL—Dr. W. O. Spencer, Yanceyville. Catarrhal fever in all parts.

CATAWBA—Dr. D. McD. Yount, Newton. Four cases of typhoid fever, one of pernicious and one of hemorrhagic malarial fever. Whooping cough and la grippe in all parts. The jail is hard to keep in anything like good sanitary condition when full of negroes.

CHATHAM—Dr. J. B. Matthews, Pittsboro. A few cases of whooping cough. Influenza epidemic in all parts. An epidemic of hog cholera.

CHEROKEE—Dr. J. F. Abernathy, Murphy. On or about the 8th of January la grippe appeared in all sections of the county. A very severe east wind came on the 15th and lasted two days. The epidemic passed away with the wind, and did not return till the 20th, since which time it has been prevailing with its usual severity.

CHOWAN — Dr. R. H. Winborne, Rockyhook. Catarrhal troubles in all parts. Hog cholera still in some sections. The want of proper drainage of swamp lands and the use of surface water from our shallow wells are considered the prime factors in the causation of malarial fevers.

CLAY—Dr. W. E. Sanderson, Hayesville. Fifty cases of mumps in the lower end of the county. Several cases of la grippe and a few of pneumonia.

CLEVELAND—Dr. O. P. Gardner, Shelby. No diseases to report.

COLUMBUS—Dr. I. Jackson, Whiteville. Influenza more or less over the county. Some malarial fever. Less hog cholera than for years.

CRAVEN—Dr. J. W. Duguid, Newbern. Two cases of diphtheria. La grippe in all parts. Cholera in fowls.

CUMBERLAND—Dr. J. Vance McGougan. La grippe in all parts. We have just moved into the new jail, which is supplied with water from the city works, and has water closet and bath tub in each cell. The building is up to date in every respect.

CURRITUCK—No Board of Health.

DARE—Dr. W. B. Fearing, Manteo. No diseases to report except scabies in certain sections.

DAVIDSON—Dr. John Thames, Lexington. One case of diphtheria. Influenza and pneumonia in all parts.

DAVIE—Dr. James McGuire, Mocksville. Influenza in all parts. The condition of the jail cannot be made as good as desired, owing to the construction of the building. A new jail is badly needed.

DUPLIN—Dr. J. C. Grady, Magnolia. No report.

DURHAM—Dr. John M. Manning, Durham. La grippe, pneumonia and catarrhal fever in all parts

EDGECOMBE—Dr. L. L. Staton, Tarboro. No diseases reported. The sanitary condition of the county home and jail is not what it should be. The authorities are not disposed to pay much attention to suggestions from the superintendent. The county home is filthy, and has vermin everywhere.

FORSYTH—Dr. E. F. Strickland, Bethania. Influenza in most parts and some pneumonia. The inmates of both county home and jail were kept warm and comfortable during the recent very cold weather.

FRANKLIN—Dr. E. S. Foster, Louisburg. La grippe in all parts. A few mild cases of typhoid fever. The construction of the jail is very faulty; we are doing all that we can to get such changes as will enable us to put in effect the necessary reforms.

GASTON—Dr. J. H. Jenkins, Dallas. Colds and la grippe in all parts. Hydrophobia among dogs has been reported, and quite a number have been killed.

GATES—No Board of Health.

GRAHAM—No Board of Health.

GRANVILLE—Dr. T. L. Booth, Oxford. Thirty-five cases of measles, ten of whooping cough and three of scarlatina. La grippe in all parts.

GREENE—Dr. Joseph E. Grimsley,

Snow Hill. Two cases of measles. La grippe epidemic in all parts.

GUILFORD—Dr. W. J. Richardson, Greensboro. One case of diphtheria. Bronchial and catarrhal troubles in Greensboro. The condition of the jail is improved and fairly good now.

HALIFAX—Dr. I. E. Green, Weldon. La grippe and bronchial troubles in all parts.

HARNETT—No Board of Health.

HAYWOOD—Dr. J. Howell Way, Waynesville. Eight cases of typhoid fever of mild type and convalescent. Mild catarrhs very prevalent in all parts.

HENDERSON—Dr. B. L. Asheworth, Hendersonville. No report.

HERTFORD—Dr. John W. Tayloe, Union. Much pneumonia in all sections.

HYDE—No Board of Health.

IREDELL—Dr. W. J. Hill, Statesville. Two cases of scarlatina. Mumps, bronchial troubles and pneumonia in all parts. The T. A. Watts' mill dam, on Third creek, was ordered down by the court last week and the swamp above it was ordered drained. Our creek bottoms in places are in a dreadful condition.

JACKSON—Dr. Wm. Self, of Webster, has been elected Superintendent of Health by the Board of County Commissioners, to fill the vacancy caused by the death of Dr. W. F. Tompkins.

JOHNSTON—Dr. R. J. Noble, Selma. No diseases reported.

JONES—No Board of Health.

LENOIR—Dr. James M. Parrott, Kinston. Influenza and pneumonia in all parts.

LINCOLN—Dr. Thos. F. Costner, Lin-

ecinton. Six cases of whooping cough and two of diphtheria; influenza in all parts.

MCDOWELL—Dr. Geo. I. White, Marion. Several cases of whooping cough; influenza and a few cases of pneumonia in nearly all parts.

MACON—Dr. S. H. Lyle, Franklin. No report.

MADISON—Dr. Jas. K. Hardwicke, Marshall. Four cases of typhoid fever; la grippe in nearly all parts.

MARTIN—Dr. W. H. Harrell, Williamston. La grippe, pneumonia and other affections of the respiratory tract in all parts. Largely increased amount of sickness, but with small mortality. The county home is a first-class summer resort, but is in a bad condition to withstand the severe weather we have had this winter.

MECKLENBURG—Dr. H. M. Wilder, Charlotte. No contagious or infectious diseases reported. The city is now building an extensive sewer system which will cost when completed something over \$25,000. They are really sewer conduits leading along the two creeks on either side of the city into which the feeding sewers empty.

MITCHELL—Dr. C. E. Smith, Bakersville. An epidemic of la grippe in nearly all parts, with some pneumonia.

MONTGOMERY—Dr. W. A. Simmons, Troy. Grip in all parts.

MOORE—Dr. Gilbert McLeod, Carthage. No report.

NASH—Dr. J. J. Mann, Nashville. La grippe in all parts.

NEW HANOVER—Dr. J. C. Shepard, Wilmington. One case of whooping cough, two of scarlatina and two of typhoid fever; la grippe in all parts. Some improvements are being made at the county home.

NORTHAMPTON—Dr. H. W. Lewis, Jackson. Three cases of hemorrhagic malarial fever; la grippe in all parts.

ONSLow—Dr. E. L. Cox, Jacksonville. Two cases of hemorrhagic malarial fever; a good many cases of pneumonia and malarial trouble.

ORANGE—Dr. D. C. Parris, Hillsboro. Several cases of measles and whooping cough. Respiratory diseases, especially influenza, in all parts.

PAMLICO—No Board of Health.

PASQUOTANK—Dr. J. E. Wood, Elizabeth City. La grippe and pneumonia in several sections.

PENDER—Dr. Geo. F. Lucas, Currie. Four cases of whooping cough. La grippe in all parts. The roof of the jail is in bad condition.

PERQUIMANS—Dr. C. C. Winslow, Winfall. One case of diphtheria and one of typhoid fever. Influenza and pneumonia (13 cases) in all parts.

PERSON—Dr. J. A. Wise, Roxboro. Measles, whooping cough, mumps, grippe and pneumonia.

PITT—Dr. Frank W. Brown, Greenville. One case of whooping cough, three of typhoid fever and two of hemorrhagic malarial fever. La grippe in all parts.

POLK—Dr. C. J. Kenworthy, Tryon. Grippe and catarrhal affections in all parts.

RANDOLPH—Dr. T. T. Ferree, Ashboro. La grippe and pneumonia in many parts. The county needs a new court house and a new jail. The jailer does all he can to keep the prisoners comfortable.

RICHMOND—Dr. W. H. Steele, Rockingham. Influenza and a few cases of pneumonia.

ROBESON—Dr. T. A. Norment, Jr., Lumberton. Five cases of scarlatina, reported to superintendent after the disease was over. La grippe and pneumonia have prevailed extensively. The County Commissioners recommend some repairs to the jail.

ROCKINGHAM—Dr. Samuel Ellington, of Wentworth, has been elected by the Commissioners Superintendent of Health.

ROWAN—Dr. John Whitehead, Salisbury. One case of typhoid fever, tonsillitis, bronchitis and pneumonia in all parts.

RUTHERFORD—Dr. E. B. Harris, Rutherfordton. La grippe is very general, though quite mild.

SAMPSON—Dr. Jno. A. Stevens, Clinton. A few cases of whooping cough and some measles. Grippe epidemic. Pneumonia, pleurisy and bronchial troubles.

STANLY—Dr. D. P. Whitley, Millington. Fifteen cases of typhoid fever, a wide-spread epidemic of la grippe, with many cases of bronchitis, pleurisy and pneumonia. More sickness than I ever knew before.

STOKES—Dr. W. L. McCanless, Danbury. Influenza in all parts.

SURRY—Dr. John R. Woltz, Dobson. Little or no sickness except colds and la grippe in the eastern part.

SWAIN—Dr. A. M. Bennett, Bryson City. La grippe and bronchial troubles in all parts.

TRANSYLVANIA—Dr. M. M. King, Brevard. Two cases of diphtheria, which were quarantined.

TYRRELL—No Board of Health.

UNION—Dr. J. E. Ashcraft, Monroe. Ten or fifteen cases of whooping cough,

la grippe and pneumonia in town and country.

VANCE—Dr. J. H. Tucker, Henderson. A few cases of whooping cough and two of typhoid fever. Winter catarrhs, grippe, bronchitis and a few cases of pneumonia in town and country.

WAKE—Dr. P. E. Hines, Raleigh. Ten cases of measles, forty nine of mumps, one of diphtheria and one of scarlatina. Bronchitis, epidemic influenza, pneumonia and catarrhal affections in all parts heard from. Five replies received from twenty-seven postal cards requesting reports for January.

WARREN—Dr. Geo. A. Foote, Warrenton. Grippe, colds and bronchitis in many parts.

WASHINGTON—Dr. W. H. Ward, of Plymouth. One case of typhoid fever. La grippe in all parts; very little other sickness. An epidemic of hog cholera in one section.

WATAUGA—Dr. W. B. Councill, Boone. Five cases of typhoid fever. La grippe in all parts.

WAYNE—Dr. W. J. Jones, Goldsboro. Two cases of measles. Catarrhal inflammations in all parts.

WILKES—Dr. J. M. Turner, Wilkesboro. La grippe and pneumonia in nearly all parts.

WILSON—Dr. N. Anderson, Wilson. No diseases reported.

YADKIN—Dr. T. R. Harding, Yadkinville. A few cases of typhoid fever. Bronchial and catarrhal troubles in all parts.

YANCEY—Dr. J. L. Ray, Burnsville. A few cases of typhoid fever. La grippe in almost all parts. The jail needs

some improvements, which will be undertaken soon. The Home is tolerably well kept. Nearly all the inmates are sick.

Review of Diseases for January, 1897.

BRONCHITIS—From Carteret, Caswell, Durham, Guilford, Halifax, Iredell, Sampson, Stanly, Swain, Vance, Wake, Warren, Wayne and Yadkin—14 counties.

CHOLERA IN CHICKENS—From Craven.

CHOLERA IN HOGS—From Bertie, Chatham, Chowan, Columbus and Washington.

DIPHTHERIA—From Alleghany, Buncombe, Craven, Davidson, Guilford, Lincoln, Perquimans, Transylvania and Wake—9 counties.

HYDROPHOBIA IN DOGS—From Gaston.

INFLUENZA—From Alamance, Alexander, Alleghany, Ashe, Bertie, Bladen, Burke, Cabarrus, Caldwell, Catawba, Chatham, Cherokee, Clay, Columbus, Craven, Cumberland, Davidson, Davie, Durham, Forsyth, Franklin, Gaston, Granville, Greene, Halifax, Lenoir, Lincoln, McDowell, Madison, Martin, Mitchell, Montgomery, Nash, New Hanover, Northampton, Orange, Pasquotank, Pender, Perquimans, Person, Pitt, Polk, Randolph, Richmond, Robeson, Rutherford, Sampson, Stanly, Stokes, Surry, Swain, Union, Vance, Wake, Warren, Washington, Watauga, Wilkes and Yancey—59 counties.

MALARIAL FEVER—From Catawba, Columbus, Northampton, Onslow and Pitt.

MALARIAL FEVER HEMORRHAGIC—From Catawba, Northampton, Onslow and Pitt.

MEASLES—From Granville, Greene, Orange, Sampson, Wake and Wayne—6 counties.

MUMPS—From Clay, Iredell and Person.

PLEURISY—From Alleghany, Sampson and Stanly.

PNEUMONIA—From Alamance, Alleghany, Clay, Davidson, Durham, Forsyth, Iredell, Lenoir, McDowell, Martin, Mitchell, Onslow, Pasquotank, Perquimans, Person, Randolph, Richmond, Robeson, Rowan, Sampson, Stanly, Union, Vance, Wake and Wilkes—25 counties.

SCABIES—From Dare.

SCARLATINA—From Granville, Iredell, New Hanover, Robeson and Wake.

TONSILLITIS—From Rowan.

TYPHOID FEVER—From Caldwell, Catawba, Franklin, Haywood, Madison, New Hanover, Perquimans, Pitt, Rowan, Stanly, Vance, Washington, Watauga, Yadkin and Yancey—15 counties.

WHOOPING COUGH—From Caldwell, Catawba, Chatham, Granville, Lincoln, McDowell, New Hanover, Orange, Pender, Person, Pitt, Sampson, Union and Vance—14 counties.

Summary of Mortuary Reports for January, 1897. (Twenty-eight towns.)

	White.	Col'd.	Total.
Aggregate population.....	87,472	62,163	149,635
Aggregate deaths.....	117	91	208
Representing annual death rate per 1000.....	16.0	17.5	16.7
<i>Causes of Death.</i>			
Typhoid Fever.....	1	1	2
Diphtheria.....	0	1	1
Pneumonia.....	24	14	38
Consumption.....	21	12	33
Brain diseases.....	6	5	11
Heart diseases.....	14	8	22
Neurotic diseases.....	3	1	4
Diarrheal diseases.....	3	7	10
All other diseases.....	43	38	81
Accident.....	1	4	5
Suicide.....	1	0	1
	117	91	208
Deaths under 5 years.....	18	26	44
Still -born.....	5	9	14

Condition of Jails and County Homes by Counties for January, 1897.

COUNTIES.	JAIL.					HOME.				
	General Sanitary Condition.	Number Prisoners confined.	Space allotted each, (in cubic feet.)	Number giving evidence of successful vaccination.	Number who can read and write.	General Sanitary Condition.	Number inmates.	Space allotted each, (in cubic feet.)	Number giving evidence of successful vaccination.	Number who can read and write.
Alamance...	†	30 (a)	.....	.....	.....	.....	36	.....	.....	.....
Alexander ..	very good	.....	.....	.....	.....	very good	9	.....	.....	2
Alleghany...	fair	3	.....	.....	.....	fair	7	.....	.....	.....
Anson .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Ashe .....	.....	3	800	.....	2	.....	9	.....	.....	2
Beaufort ....	.....	7	.....	.....	.....	.....	14	.....	.....	.....
Bertie	very good	19 (b)	.....	.....	14	very good	.....	.....	3	3
Bladen	no change	1	.....	.....	.....	no change	4	.....	.....	.....
Brunswick ..	no change	2	*	0	2	no change	9	*	0	0
Buncombe ..	very good	103 (c)	*	.....	.....	very good	36	*	.....	.....
Burke .....	.....	7	.....	.....	.....	well kept†	15	.....	.....	.....
Cabarrus	†	48 (d)	*	10	16	.....	24	*	10	14
Caldwell	†	5	*	0	2	.....	5	*	0	5
Camden .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Carteret	no change	0	.....	.....	.....	.....	0	.....	.....	.....
Caswell	no change	3	.....	.....	.....	no change	32	.....	.....	.....
Catawba	†	11	350	0	3	.....	44	850	16	14
Chatham	clean	12	*	0	3	clean	23	*	0	3
Cherokee .....	.....	8	.....	.....	.....	.....	5	.....	.....	.....
Chowan	good	5	*	2	0	good	6	*	2	0
Clay .....	.....	2	.....	.....	.....	.....	0	.....	.....	.....
Cleveland ...	.....	22	.....	.....	.....	.....	25	.....	.....	.....
Columbus ...	good	5	*	.....	5	good	7	*	.....	0
Craven .....	.....	16	.....	.....	.....	.....	26	.....	.....	.....
Cumberland ..	.....	18	.....	.....	.....	.....	22	.....	.....	.....
Currituck ..	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Dare .....	.....	1	.....	.....	.....	.....	0	.....	.....	.....
Davidson ....	.....	6	.....	.....	.....	.....	29	.....	.....	.....
Davie	†	4	.....	.....	.....	very good	10	.....	.....	.....
Duplin .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Durham .....	.....	36 (e)	*	.....	.....	.....	17	*	.....	.....
Edgecombe ..	†	19	*	0	5	†	20	*	0	4
Forsyth	good†	11	1,000	5	7	.....	21	*	5	3

* Space exceeds 1,000 cubic feet. †See Summary of Reports of County Superintendents of Health. (a) Includes 16 in House of Correction. (b) Includes 8 in House of Correction. (c) Includes 63 in House of Correction. (d) Includes 41 in House of Correction. (e) Includes 32 in House of Correction.

Condition of Jails and County Homes by Counties.—CONTINUED.

COUNTIES.	JAIL.					HOME.				
	General Sanitary Condition.	Number Prisoners confined.	Space allotted each. (in cubic feet.)	Number giving evidence of successful vaccination.	Number who can read and write.	General Sanitary Condition.	Number inmates.	Space allotted each. (in cubic feet.)	Number giving evidence of successful vaccination.	Number who can read and write.
Franklin	+	2	*			very good	24	*		
Gaston	good					good				
Gates										
Graham										
Granville		9					33			
Greene	good	5	600	0	3	good	8		4	3
Guilford	+ fair	57 (a)				good	43			
Halifax		17		3	4		51		6	5
Harnett										
Haywood		4					4			
Henderson										
Hertford		2	*	0	1		10	*	0	0
Hyde										
Iredell	no change	39 (b)	500			no change	26	500		
Jackson										
Johnston		7	1,000				16	*		
Jones										
Lenoir	no change						0			
Lincoln	good	4	*	2	3	good	22	600	12	6
McDowell										
Macon										
Madison		20	300	8	4		17	400	7	6
Martin		3	*			crowded	22			
Mecklenburg ...	good	138 (c)				good	58			
Mitchell	bad	6				fair	6			
Montgomery....	very good	3	500			very good	19	500		
Moore										
Nash		6	600	0	6		27	1,000	6	8
New Hanover ..		22 (d)	600	5	19	+	22	*	20	8
Northampton ..	good	8	900	0	2	good	32	1,000	10	8
Onslow	fair	4				fair	5			
Orange	not good	4	500	2	2	fair	20	1,000	10	12
Pamlico										

* Space exceeds 1,000 cubic feet. + See Summary of Reports from County Superintendents of Health. (a) Includes 41 in House of Correction. (b) Includes 25 in House of Correction. (c) Includes 111 in House of Correction. (d) Includes 10 in House of Correction.

Condition of Jails and County Homes by Counties.—CONTINUED.

COUNTIES.	JAIL.					HOME.				
	General Sanitary Condition.	Number Prisoners confined.	Space allotted each. (In cubic feet.)	Number giving evidence of successful vaccination.	Number who can read and write.	General Sanitary Condition.	Number inmates.	Space allotted each. (In cubic feet.)	Number giving evidence of successful vaccination.	Number who can read and write.
Pasquotank.....		0					28	*	0	0
Pender.....	† good	0					5		0	0
Perquimans.....	good	3				good	5		0	3
Person.....	good	0				good	11		9	2
Pitt.....	fair.	14				fair	29			
Polk.....		4	*	0	2					
Randolph.....	†	8			6		30			6
Richmond.....	fair	25	568	0	19	fair	25	*	0	8
Robeson.....	† fair	12				fair	10			
Rockingham.....										
Rowan.....		16	400	8	6		21	500	9	5
Rutherford.....		6					10			
Sampson.....	good	4				good	21			
Stanly.....	good	8	*	0	2	good	8	*	0	1
Stokes.....	good	7	600	3	4	good	13	600	2	5
Surry.....	good	8			5	good	21			1
Swain.....	good	2				good	4			
Transylvania.....		1	*	0	0		4	*	0	0
Tyrrell.....										
Union.....		26					30			
Vance.....	fair	7	*	2	1	very good	16	*	2	2
Wake.....	good	74 (a)				good	66			
Warren.....	very good	1		0	0	very good	24		2	3
Washington.....	good	5	820	0	3	good	7		1	1
Watauga.....	good	3				good	9			
Wayne.....	good	14			8	good	16			3
Wilkes.....	no change	8				no change	8			
Wilson.....	good	15				good	20			
Yadkin.....	fair	1		0	0	poor	23		0	5
Yancey.....	† very good	1	*	0	1	fair	3			

* Space exceeds 1,000 cubic feet. † See Summary of Reports of County Superintendents of Health. (a) Includes 67 in House of Correction.

Mortuary Report for January, 1897.

TOWNS AND REPORTERS.	RACES.	POPULA- TION.		TEMPORARY ANNUAL DEATH RATE PER 1,000.		Typhoid Fever.	Scarlet Fever.	Malarial Fever.	Diphtheria.	Whooping Cough.	Measles.	Pneumonia.	Consumption.	Brain Diseases.	Heart Diseases.	Nervous Diseases.	Diarrhoeal Diseases.	All Other Diseases.	Accident.	Suicide.	Violence.	TOTAL DEATHS.	By Towns.	Deaths under 5 years. Still Born.
		By Races.	Total.	By Races.	Total.																			
Asheville.....	White.	8,000		18.0																				
Dr. E. C. Starnes.....	Colored.	4,000	12,000	0.0	12.0																			
CHARLOTTE.....	White.	10,855		19.9		1																		
C. A. Spratt, H. Off'r.....	Colored.	8,796	19,651	12.3	16.5																			
Durham.....	White.	4,000		27.0																				
Dr. J. M. Manning.....	Colored.	2,000	6,000	0.0	18.0																			
FAYETTEVILLE.....	White.	3,500		17.1																				
Dr. J. V. McGougan.....	Colored.	2,500	6,000	9.6	14.0																			
GOLDSBORO.....	White.	3,600		13.3																				
T. H. Bain, Sec. B. H.....	Colored.	2,000	5,600	12.0	12.8																			
GREENSBORO.....	White.	5,500		10.9																				
J. S. Michaux, City Clk.....	Colored.	2,500	8,000	24.0	15.0																			
HENDERSON.....	White.	2,250		10.7																				
Dr. W. J. Judd.....	Colored.	2,000	4,250	6.0	8.4																			
HILLSBORO.....	White.	400		30.0																				
Dr. D. C. Parris.....	Colored.	500	700	0.0	17.1																			
JACKSONVILLE.....	White.	150		160.0																				
Dr. E. L. Cox.....	Colored.	100	250	120.0	144.0																			
LENOIR.....	White.	800		0.0																				
Dr. A. A. Kent.....	Colored.	300	1,100	0.0	0.0																			
MARION.....	White.	800		45.0																				
Dr. G. I. White.....	Colored.	200	1,000	0.0	36.0																			
MONROE.....	White.	1,800		20.0																				
Dr. J. M. Blair.....	Colored.	600	2,400	20.0	20.0																			
OXFORD.....	White.	1,500		24.0																				
Dr. T. L. Booth.....	Colored.	1,000	2,500	36.0	28.8																			
RALEIGH.....	White.	7,200		25.0																				
Dr. P. Sale, Clerk B. H.....	Colored.	6,000	13,200	18.0	21.8																			
ROCKINGHAM.....	White.	1,500		9.2																				
Dr. W. H. Steele.....	Colored.	450	1,750	0.0	6.8																			
ROCKY MOUNT.....	White.	1,600		0.0																				
Dr. G. L. Wimberley.....	Colored.	1,000	2,600	0.0	0.0																			
SALEM.....	White.	3,942		12.2																				
S. C. Butner, H. Off'r.....	Colored.	342	4,284	35.1	14.0																			
SALISBURY.....	White.	3,500		6.8																				
Dr. John Whitehead.....	Colored.	1,500	5,000	72.0	26.4																			
SCOTLAND NECK.....	White.	775		32.2																				
Mayor J. A. Perry.....	Colored.	425	1,200	0.0	20.0																			
SOUTHPORT.....	White.	800		15.0																				
E. B. Stevens, City Clk.....	Colored.	400	1,200	0.0	10.0																			
STATESVILLE.....	White.	2,500		9.6																				
Dr. W. J. Hill.....	Colored.	1,000	3,500	12.0	10.3																			
TARBORO.....	White.	1,300		18.5																				
Dr. L. L. Staton.....	Colored.	1,200	2,500	20.0	19.2																			
WARRENTON.....	White.	1,000		0.0																				
Dr. Geo. A. Foote.....	Colored.	500	1,500	0.0	0.0																			
WASHINGTON.....	White.	3,000		8.0																				
Dr. Joshua Tayloe.....	Colored.	2,500	5,500	9.6	8.7																			
WELDON.....	White.	700		17.1																				
Mayor J. T. Gooch.....	Colored.	750	1,450	16.0	16.5																			
WILMINGTON.....	White.	9,000		14.7																				
Dr. J. C. Shepard.....	Colored.	13,000	22,000	25.8	21.4	1																		
WILSON.....	White.	2,500		19.2																				
Dr. N. Anderson.....	Colored.	2,000	4,500	6.0	13.3																			
WINSTON.....	White.	5,200		6.9																				
Dr. John Bynum.....	Colored.	4,800	10,000	32.5	19.2																			

N. B. The reporters for the cities and towns printed in large type have signed this certificate "I hereby certify that this report gives the whole number of deaths occurring within the corporate limits during the above month." * All visitors.

METEOROLOGICAL SUMMARY FOR NORTH CAROLINA, JANUARY, 1897.

Furnished by the North Carolina Climate and Crop Service.

C. F. VON HERRMANN, DIRECTOR.

STATIONS.	TEMPERATURE, (DEGREES FAHR.)									NO. OF DAYS.					Prevailing Wind.
	Monthly Mean.	Highest.	Date.	Mean Maximum.	Lowest	Date.	Mean Minimum.	Monthly Range.	Mean Daily Range.	Total Precipitation. (in inches)	Clear.	Partly Cloudy.	Cloudy.	Rainy.	
Asheville.....	32.9	56	3	43.0	-2	28	22.8	58	20.2	1.78	16	8	7	9	NW
Beaufort.....	44.8	70	4	54.0	15	29	35.5	55	18.5	1.91	15	5	11	5	N
Charlotte.....	37.1	62	3	44.9	6	28	29.3	56	15.6	2.53	14	5	12	10	E
Chapel Hill.....	35.7	69	4	45.3	7	29	26.1	62	19.2	2.66	20	3	8	4	W
Highlands.....	30.6	56	14	40.7	-10	28	20.4	66	20.3	5.04	12	7	12	7	NW
Henderson.....	35.9	67	4	44.8	8	28	27.0	59	17.8	2.25	15	5	11	5	NW
Linville.....	27.8	50	4	36.1	-7	28	19.6	57	16.5	3.68	18	3	10	6	W
Louisburg.....	36.4	67	4	45.6	8	30	27.1	59	18.5	2.06				5	
Lenoir.....	35.4	58	10		0	29				2.83	14	6	11	5	NW
Monroe.....	38.5	65	2	48.5	7	28	28.5	58	20.0	2.27	15	2	14	8	NW
Morganton.....	32.5	62	1	44.3	5	29	26.8	57	17.5	3.40				3	
Mt. Airy.....	33.2	63	3	42.7	1	30	23.7	62	19.0	2.57	15	6	10	5	SW
Mocksville.....	38.2	66	3	48.4	4	28	28.0	62	20.4	2.42	14	9	8	10	NW
Newbern.....	46.8	74	4	55.1	16	29	38.5	58	16.6	1.74				6	
Oak Ridge.....	34.4	64	3	43.8	0	29	25.0	64	18.8	1.87	21	2	8	6	N
Pittsboro.....	35.4	67	4	43.6	7	29	27.3	60	16.3	4.53	17	6	8	6	NW
Raleigh.....	37.7	68	4	46.1	9	29	29.3	59	16.8	2.23	12	7	12	10	N
Roxboro.....	33.8	65	4	44.1	4	28	23.4	61	21.7	2.27				6	
Rockingham.....	41.0	68	4	52.3	10	28	29.7	58	22.6	1.40	19	1	10	5	N
Southport.....	44.2	67	4	52.9	13	29	35.5	54	17.4	2.07	8	9	14	7	N
Salisbury.....	38.0	64	3	47.1	7	28	28.8	57	18.3	2.71				6	
Selma.....	38.5	69	4	46.9	12	29	30.1	57	16.8	2.20				5	
Saxon.....	33.4	66	4	42.6	0	30	24.1	66	18.5	1.75	12	11	8	5	NE
Tarboro.....	37.8	69	4	49.3	7	29	26.3	62	23.0	1.92	15	5	11	4	NW
Weldon.....	36.0	67	4	44.5	10	29	27.4	57	17.1	2.25	15	6	10	6	W
Wilmington.....	43.6	68	4	52.3	14	29	34.8	54	17.5	1.76	15	8	8	9	N

State Meteorological Summary for January, 1897.

Mean barometer 30.21 inches; normal for January 30.16. Highest barometer 30.67 on the 31st at Raleigh. Lowest barometer 29.66 on the 27th at Hatteras. Mean temperature 37.4 degrees; normal for January 40.2. Highest temperature 74 on the 4th at Newbern. Lowest temperature -12 on the 28th at Waynesville. Average rainfall 2.30 inches; normal for January 4.50 inches. Greatest monthly rainfall 5.04 inches at Highlands; least monthly rainfall 0.92 inches at Falkland. Average number of clear days 14; partly cloudy 6; cloudy 11; rainy 6. Prevailing wind direction North. Average hourly velocity 8.7 miles per hour. Normal direction for January Southwest; normal velocity 8.5 miles per hour.

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BULLETIN

OF THE

NORTH CAROLINA BOARD OF HEALTH.

Published Monthly at the Office of the Secretary of the Board, at Raleigh, N. C.

GEO. G. THOMAS, M. D., *Pres.*,.....Wilmington.
S. WESTRAY BATTLE, M. D.,.....Asheville.
W. H. HARRELL, M. D.,.....Williamston.
JOHN WHITEHEAD, M. D.,.....Salisbury.

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J. C. CHASE, CIV. ENG.,.....Wilmington.

RICHARD H. LEWIS, M. D., *Secretary and Treasurer*, Raleigh.

VOL. XI.

MARCH, 1897.

No. 12.

The Protection of Public Water Supplies.

Nothing is of more importance in sanitation than the prevention of the contamination of drinking water by the germs of disease, more especially where large numbers of people drink from the same supply. Realizing this, and that our public supplies in North Carolina are in most instances peculiarly exposed to contamination, we intended trying to get some necessary legislation from the recent General Assembly. We were therefore greatly encouraged when we received, some time before it met, a letter from Hon. Thos. H. Sutton, the representative elect from Cumberland, asking us to prepare a bill on this very subject. We did so. It was introduced by Mr. Sutton, and was reported favorably unanimously by the Committee on Public Health. But, alas, that was the end of it. The legislature was so absorbed in more exciting questions of a political nature that our bill could never be gotten up. We also failed on a bill to promote vaccination and on one to prevent blindness. Inasmuch as the Raleigh

Water Company, we are told, intends carrying out voluntarily the provisions of the act, and as perhaps some of our other water companies may be induced to do the same, and in order that our readers may see what we have been trying to do, we print it. At the suggestion of a member of the Board we also append the "brief" that was sent together with a copy of the bill to the leading members of the House.

AN ACT TO PROTECT PUBLIC WATER SUPPLIES.

The General Assembly of North Carolina do enact:

SECTION 1. In the interest of the public health, every person or company selling water to the public for drinking and household purposes shall take every reasonable precaution to protect from contamination and assure the healthfulness of such water; and any provisions in any charters heretofore granted to such persons or companies in conflict with the provisions of this act are hereby repealed.

SEC. 2. Those water companies deriving their supply from lakes or ponds, or from small streams not more than

fifteen miles in length, shall have made a sanitary inspection of the entire water shed, not less under any circumstances than once in every three calendar months, and a sanitary inspection of any particular locality on said water-shed at least once in each calendar month, whenever, in the opinion of the Board of Health of the city or town to which the water is supplied, or when there is no such local Board of Health in the opinion of the County Superintendent of Health, or in the opinion of the State Board of Health, there is reason to apprehend the infection of the water by that particular locality. Said companies shall have made a sanitary inspection of any particular locality on said water-shed at least once in each week, whenever in the opinion of the Board of Health of the city or town to which the water is supplied, or when there is no such local Board of Health, in the opinion of the County Superintendent of Health, or in the opinion of the State Board of Health, there is special reason to apprehend the infection of the water from that particular locality by the germs of typhoid fever or cholera.

The inspection of the entire water-shed as herein provided for shall include a particular examination of the premises of every inhabited house on the water-shed, and in passing from house to house a general inspection for dead bodies of animals or accumulations of filth. It is not intended that the term "entire water-shed" shall include uninhabited fields and wooded tracts that are free from suspicion.

The inspection shall be made by an employe of and at the expense of said water company, in accordance with reasonable instructions as to method to be furnished by the Secretary of the State Board of Health.

The said sanitary inspector shall give in person to the head of each household on said water shed, or in his absence to some member of said household the necessary directions for the proper sanitary care of his premises. It shall further be the duty of said inspector to deliver to each family residing on the water-shed such literature on pertinent sanitary subjects as may be supplied him by the municipal health officer or by the Secretary of the State Board of Health.

SEC. 3. In case of those companies obtaining their supply of water from rivers or large creeks, having a minimum daily flow of ten million gallons the provisions of Section 2, shall be applied to the fifteen miles of water-shed draining into the said river or creek next above the intake of the water-works.

SEC. 4. Failure on the part of any water company to comply with the requirements of Sections 2 and 3 shall be punished by a deduction from any charges for water against the city or town supplied of twenty-five dollars for each and every such failure: *Provided*, that in no one year shall the sum of such forfeitures exceed five hundred dollars.

Where the water works are owned and operated by the city or town, failure on the part of the municipal official having in charge the management of the water works to comply as above shall be a misdemeanor, and punishable by a fine of not less than ten nor more than twenty-five dollars, or by imprisonment for not less than ten nor more than thirty days: *Provided*, the said official do not prove to the satisfaction of the court that in spite of reasonable effort and diligence on his part he was prevented, directly or indirectly by his superiors from doing his

duty in this respect, in which case said superior officer or officers shall be deemed guilty of a misdemeanor, and punishable by a fine of not less than fifty nor more than two hundred dollars, or by imprisonment for not less than one nor more than six months.

SEC. 5. Every city or town having a public water supply shall at its own expense have made at least once in every three months by one of its own officials a sanitary inspection of the entire water-shed of its water supply, and it shall be the duty of the said official making such inspection to report to the Mayor any violation of this act.

SEC. 6. Every person residing or owning property on the water shed of a lake, pond or stream from which a public supply is obtained shall carry out such reasonable instructions as may be furnished him in the manner set forth in Section 2, or directly by the municipal health officer or by the State Board of Health. Failure to do so shall be deemed a misdemeanor, and shall be punishable by a fine of not less than two dollars and costs, nor more than twenty-five dollars and costs, or by imprisonment for not less than ten nor more than thirty days.

SEC. 7. The charters of all cities and towns having public water supplies are hereby amended so as to give said cities and towns the same police powers on the water-sheds of said public water supplies as they now possess within their corporate limits: *Provided*, these police powers shall apply only to violations of this act.

SEC. 8. The Mayor of each city or town having a public water supply shall have jurisdiction of all violations of this act, and the same shall be reported by the inspector of the city or town and of the water company to and tried by him, except where the

water works are owned and operated by the city or town, in which case the matter shall be tried by some other justice of the peace or by the superior court, according as the penalty imposed fixes the jurisdiction, upon complaint of the municipal health officer, the County Superintendent of Health, the secretary of the State Board of Health, or any resident of said city or town.

SEC. 9. Every water company whether owned by private individuals or corporations or by the municipality shall have made, not less frequently than once in every three months, at its own expense, both a chemical and a bacteriological examination of a sample of its water drawn from a faucet used for drinking purposes, packed and shipped in accordance with the instructions to be furnished by the Secretary of the State Board of Health, and shall transmit a copy of the same to the Mayor, the municipal health officer and the Secretary of the State Board of Health.

SEC. 10. As a check and guarantee of the faithful performance of the requirements laid down in the preceding sections of this act the State Board of Health shall make or have made by its authorized agents such inspections of the water-sheds and such chemical and bacteriological examinations of the public water supplies of the State as may be deemed necessary to insure their purity.

Should such inspections or examinations show conditions dangerous to the public health, the Secretary of the said State Board of Health shall notify the Mayor, the municipal health officer and the Superintendent or Manager of the water works at fault and demand the immediate removal of said dangerous conditions. If at the end of thirty days after the service of said notice and

demand, the said dangerous conditions have not been removed, to the extent that due diligence could accomplish such removal, the said Secretary shall have printed in one or more of the local newspapers a plain statement of the facts for the information and protection of the citizens using the water.

SEC. 11. Each sanitary inspector herein provided for is hereby authorized and empowered to enter upon any premises and into any building upon his respective water-shed for the purpose of making the inspections herein required.

SEC. 12. For carrying out the provisions of this act, five hundred dollars or so much thereof as may be necessary, are hereby annually appropriated to be paid on requisition to be signed by the Secretary and President of the State Board of Health. A yearly statement shall be made to the State Treasurer of all money received and expended in pursuance of this act.

SEC. 13. That this act shall be in force from and after May 1st, 1897.

"Brief."

AN ACT TO PROTECT PUBLIC WATER SUPPLIES.

Reasons Why it Should be Passed by the General Assembly.

Of all the preventable diseases, consumption alone excepted, typhoid fever is by far the most deadly in our State. In the year 1896 there occurred in eleven cities and towns of the State, having an aggregate population of 105,501, which certified to the accuracy of their mortuary statistics, 107 deaths from typhoid fever—or one in every 967 of the population. Estimating at this ratio for the whole State on a basis of 1,800,000 population, the number of deaths from typhoid fever in North Carolina dur-

ing the past year was 1,861. Taking the death rate given by one of the highest authorities in a similar calculation, 10 per cent., there were, during the same time, 16,740 persons sick of the disease who recovered. Let us see what this meant to the State in dollars and cents, leaving out of consideration entirely the anxiety and sorrow entailed. Valuing each life at \$2,000, time lost by those who recovered on an average of 45 days of sickness per case at 80 cents per day, nursing, medicines, and doctors' bills at \$25 and funeral expenses of those who died at \$25 each, the statement of the matter in tabular form is as follows:

1,861 deaths at \$2,000 each.....	\$3,722,000
1,861 funerals at \$25 each.....	46,525
Wages of 16,740 convalescents, during 45 days, at 80 cents.....	360,103
Nursing, medicines and doctors' bills for 18,610 case, at \$25 each.....	465,250

Total tax levied in 1896 by typhoid fever upon the State..... \$4,593,878

Deducting 33½ per cent. for every possible inaccuracy or over-estimate, typhoid fever cost the State last year, in round numbers, \$3,000,000. And the pity of it is that so many lives and so much money could have been saved by proper precautions. The reader, interested in this phase of the subject, is referred to the accompanying article entitled "Does Pure Water Pay," by Prof. Mason, the author of the best work on Water Supplies in the English language.

Typhoid fever is a preventable disease. It is caused almost invariably by drinking water which has been contaminated with the bowel discharges of another case. It is all important, therefore, to prevent this contamination, for while something can be done by filtration, it is not reliable as far as disease germs are concerned, and if well done is expensive. To prevent the entrance of the germs into the water

in the first instance is the object of this bill, and it is for the direct benefit of the 125,000 (and more in the future) of our people living in fourteen of our largest and most progressive cities and towns. One case of typhoid fever or cholera on a water-shed without proper sanitary oversight would be liable to poison the whole city, or at any rate all of the inhabitants who use the public water supply—to spread sickness and death *wholesale*. Most of the water supplies in the State are from small, short streams whose water-sheds are thickly populated, and therefore peculiarly dangerous.

It is the duty of the State to protect the lives of its citizens. Water companies are corporations organized for the purpose of making money. Their object is to declare dividends. A tender regard for the lives and health of individuals does not characterize them any more than other corporations. It is a proverb that corporations are soulless. The recent experience of the writer in investigating the water supplies of the State, under the instructions of the Board of Health, demonstrated the crying need of legislation as is embodied in the Hon. Mr. Sutton's bill. While the above is true, corporations providing conveniences for the public should not be unreasonably hampered. This bill does not impose any hard conditions upon them. Quite the contrary. An annual expenditure on their part of three or four hundred dollars would be required, but they would be more than re-imbursed by the larger consumption which would result from the greater confidence in the purity and safety of the water that the presence of this law on the statute

books would give. It would remove the suspicion and distrust that now exists—and with reason—in the minds of many. Seriously, the bill could be justly entitled "An Act to Promote the Business Interests of Water Companies." In a word, its passage would materially promote the public health, and not only not injure but positively benefit the water companies.

The extension of the police powers of the cities and towns to their water-sheds, for the purpose of carrying out the provisions of this act alone, is extremely important, because it would provide what is now lacking, the practical machinery which would insure protection.

The necessity for general supervision by the State Board of Health, a disinterested body composed of men from all parts of the State, and uninfluenced by local considerations, whose business it is to look after just such matters, is manifest. The small appropriation is absolutely necessary for the proper exercise of this supervision. Bacteriological examinations, which are much more important than chemical, although the latter are important also, are expensive, and the cost of inspections when indicated must be met.

The General Assembly could hardly enact a law so fraught with good to the people and so free from objections of any kind.

RICHARD H. LEWIS, M. D.,
Sec'y State Board of Health.

N. B.—Since the above was written three water companies, namely, Raleigh, Henderson and Durham (the only ones heard from), have expressed their approval of the bill and their desire for its passage.

Summary of Reports from County Superintendents of Health for February, 1897
(Eighty counties reporting).

In the blanks on which these reports are made the following items are called for :

1. The number of cases of small-pox, measles, whooping cough, scarlatina, diphtheria, typhoid fever, pernicious malarial fever, hemorrhagic malarial fever, yellow fever and cholera which have occurred in the county during the past month.

2. The diseases which have been prevalent in the county, and in what parts.

3. Epidemics among domestic animals.

4. Remarks as to special unsanitary conditions in the county.

In few counties do physicians generally report these details to the Superintendent, though furnished with blanks for that purpose, and in most cases he has to depend upon himself alone in making his report.

Details as to the jails, houses of correction, and county homes are also given in these reports, and will be found tabulated on other pages.

ALAMANCE—Dr. R. A. Freeman, Burlington. Some typhoid fever. La grippe and pneumonia in some parts.

ALEXANDER—Dr. T. F. Stevenson, Taylorsville. No epidemic.

ALLEGHANY—Dr. Robt. Thompson, Sparta. La grippe, pleuritis and pneumonia in all parts, the first more fatal among old people than ever before and the last unusually severe.

ANSON—Dr. E. S. Ashe, Wadesboro. No report.

ASHE—Dr. L. C. Gentry, Crumpler. Influenza in all sections, complicated with meningitis and pneumonia.

BEAUFORT—Dr. Joshua Tayloe, Washington. One case of whooping cough and one of scarlatina.

BERTIE—Dr. H. V. Dunstan, Windsor. La grippe and pneumonia in all parts. An epidemic of distemper in horses.

BLADEN—Dr. Newton Robinson, Elizabethtown. Grippe in mild form in all parts.

BRUNSWICK—Dr. D. I. Watson, Southport. No diseases to report.

BUNCOMBE—Dr. E. C. Starnes, Asheville. No diseases reported.

BURKE—Dr. J. L. Laxton, Morganton. No sickness to report.

CABARRUS—Dr. Robt. S. Young, Concord. Twenty-seven cases of whooping cough and three of typhoid fever. An epidemic of la grippe, pneumonia and catarrhal troubles generally.

CALDWELL—Dr. A. A. Kent, Lenoir. Fifty cases of whooping cough, one of scarlatina, one of typhoid fever and a few of grippe and pneumonia. The General Assembly refused to pass an act allowing the county to levy a special tax for the building of a new jail.

CAMDEN—No Board of Health.

CARTERET—Pneumonia and bronchial troubles in all parts. An epidemic of hog cholera. The sanitary condition of the public buildings is as good as could be expected in their dilapidated state.

CASWELL—Dr. W. O. Spencer, Yanceyville. Catarrhal fever in all parts, with a good deal of pneumonia and many deaths in the southern part of the county.

CATAWBA—Dr. D. McD. Yount, Newton. Measles 6, diphtheria 1, typhoid fever 5, pernicious 1 and hemorrhagic malarial fever 2. Whooping cough in all parts. The jail and county home

are fairly well kept and clean. The house has one-story, two-room cottages. The jail has water closet and sewer.

CHATHAM—Dr. J. B. Matthews, Pittsboro. A few cases of whooping cough and measles. La grippe and pneumonia are rapidly subsiding. An epidemic of hog cholera.

CHEROKEE—Dr. J. F. Abernathy, Murphy. No sickness to report. An epidemic of 100p among fowls.

CHOWAN — Dr. R. H. Winborne, Rockyhook. Catarrhal and bronchial troubles in all parts, with some pneumonia. Roseola in Edenton and upper part of county. Isolated cases of hog cholera.

CLAY—Dr. W. E. Sanderson, Hayesville. Mumps and la grippe. Four cases of typhoid fever.

CLEVELAND—Dr. O. P. Gardner, Shelby. Health of county good, except la grippe here and there.

COLUMBUS—Dr. I. Jackson, Whiteville. La grippe widespread, with some pneumonia and a few deaths from it.

CRAVEN—Dr. J. W. Duguid, Newbern. No diseases to report. The public building in Newbern is finished on the outside and nearly so on the inside.

CUMBERLAND—Dr. J. Vance McGougan, Fayetteville. Six cases of whooping cough. La grippe in all parts.

CURRITUCK—No Board of Health.

DARE—Dr. W. B. Fearing, Manteo. La grippe in all parts.

DAVIDSON—Dr. John Thames, Lexington. One case of typhoid fever. Influenza, pneumonia and malarial fever in all parts.

DAVIE—Dr. James McGuire, Mocksville. Measles, Whooping Cough, mumps and la grippe in all parts.

DUPLIN—Dr. J. C. Grady, Magnolia. No report.

DURHAM—Dr. John M. Manning, Durham. Two cases of scarlatina, la grippe, pneumonia and catarrhal fever in all parts. The court house is being renovated, and the jail has been repainted on the inside and thoroughly cleansed.

EDGECOMBE—Dr. L. L. Staton, Tarboro. Three cases of hemorrhagic malarial fever. Grip in all parts.

FORSYTH—Dr. E. F. Strickland, Bethania. Influenza in all parts.

FRANKLIN—Dr. E. S. Foster, Louisburg. La grippe has prevailed extensively, and has proved quite fatal in old and infirm persons. A few cases of typhoid fever.

GASTON—Dr. J. H. Jenkins, Dallas. A few cases of grip, with pneumonia in one case. Still some cases of mumps.

GATES—No Board of Health.

GRAHAM—No Board of Health.

GRANVILLE—Dr. T. L. Booth, Oxford. Two cases of measles and eight of whooping cough. La grippe in all parts.

GREENE—Dr. Joseph E. Grimsley, Snow Hill. Six cases of measles and a few of pneumonia. La grippe and follicular tonsillitis in all parts.

GUILFORD—Dr. W. J. Richardson, Greensboro. Bronchial, malarial and lung troubles.

HALIFAX—Dr. I. E. Green, Weldon. One case of measles, one of diphtheria and two of hemorrhagic malarial fever. La grippe and bronchial diseases in all parts.

HARNETT—No Board of Health.

HAYWOOD—Dr. J. Howell Way, Waynesville. Three cases of typhoid fever. Very little serious sickness. Mild acute catarrhs very prevalent.

HENDERSON—Dr. B. L. Asheworth, Hendersonville. La grippe in all parts.

HERTFORD—Dr. John W. Tayloe, Union. One case of hemorrhagic malarial fever. La grippe and pulmonary troubles in all sections heard from. Only one physician reports to Dr. Tayloe.

HYDE—No Board of Health.

IREDELL—Dr. W. J. Hill, Statesville. One case of scarlatina. Bronchial troubles and pneumonia.

JACKSON—Dr. Wm. Self, of Webster. No diseases reported. The sanitary condition of the jail is bad owing to its construction. Some improvement is being made at present.

JOHNSTON—Dr. R. J. Noble, Selma. No diseases reported.

JONES—No Board of Health.

LENOIR—Dr. James M. Parrott, Kinston. One case of pernicious malarial fever. Influenza in all parts.

LINCOLN—Dr. Thos. F. Costner, Lincoln. Six cases of whooping cough. Influenza in all parts.

MCDOWELL—Dr. George I. White, Marion. Some influenza, and pneumonia in all parts.

MACON—Dr. S. H. Lyle, Franklin. No report.

MADISON—Dr. Jas. K. Hardwicke, Marshall. No report.

MARTIN—Dr. W. H. Harrell, Williamston. La grippe and pneumonia in all parts.

MECKLENBURG—Dr. H. M. Wilder, Charlotte. No diseases reported. A case of glanders in a horse reported and the animal killed.

MITCHELL—Dr. C. E. Smith, Bakersville. La grippe epidemic in all parts, with some pneumonia. The County

Commissioners and the majority of the good citizens of the county petitioned the legislature to allow a special tax for the purpose of building a new jail.

MONTGOMERY—Dr. W. A. Simmons, Troy. Grip in all parts—otherwise very healthy.

MOORE—Dr. Gilbert McLeod, Carthage. No report.

NASH—Dr. J. J. Mann, Nashville. No report.

NEW HANOVER—Dr. J. C. Shepard, Wilmington. Twenty-four cases of whooping cough, two of scarlatina, one of diphtheria, one of typhoid fever and a few of mumps. Grip has prevailed extensively but has now entirely subsided. There has been considerable improvement in the condition of the county home.

NORTHAMPTON—Dr. H. W. Lewis, Jackson. Three cases of hemorrhagic malarial fever.

ONslow—Dr. E. L. Cox, Jacksonville. One case of hemorrhagic malarial fever. La grippe, pneumonia and malarial troubles in all parts. The condition of the court house could be improved in some ways.

ORANGE—Dr. D. C. Parris, Hillsboro. Many cases of measles and some of whooping cough. Influenza and pneumonia in all parts.

PAMLICO—No Board of Health.

PASQUOTANK—Dr. J. E. Wood, Elizabeth City. One case of measles. Influenza and pneumonia in several parts.

PENDER—Dr. Geo. F. Lucas, Currie. La grippe in all parts. Some needed work is being done to the jail. Our commissioners are intelligent and humane gentlemen, and are giving me

assistance and encouragement whenever asked for.

PERQUIMANS—Dr. C. C. Winslow, Roxboro. Measles, whooping cough and bronchitis.

PERSON—Dr. J. A. Wise, Roxboro. No report.

PITT—Dr. Frank W. Brown, Greenville. La grippe in all parts.

POLK—Dr. C. J. Kenworthy, Tryon. Grippe has prevailed, but has disappeared.

RANDOLPH—Dr. T. T. Ferree, Ashboro. One case of whooping cough. A great epidemic of grippe in all parts. The county needs a new jail and a new county home.

RICHMOND—Dr. W. H. Steele, Rockingham. Many cases of influenza and one of typhoid fever.

ROBESON—Dr. T. A. Norment, Jr., Lumberton. Grippe and pneumonia somewhat abated since last report.

ROCKINGHAM—Dr. Samuel Ellington, Wentworth. One case of diphtheria. La grippe in all parts.

ROWAN—Dr. John Whitehead, Salisbury. Ten cases of whooping cough and two of typhoid fever. Malarial affections, mumps and bronchitis in all parts.

RUTHERFORD—Dr. E. B. Harris, Rutherfordton. Very little sickness.

SAMPSON—Dr. Jno. A. Stevens, Clinton. A very severe epidemic of influenza, complicated in many cases with bronchitis and pneumonia. A few cases of measles and whooping cough. It has been a month of a great deal of sickness.

STANLY—Dr. D. P. Whitley, Millington. Eight cases of typhoid fever. La grippe in all parts during the first half of the month, but it has subsided.

There have been 50 or 60 cases of typhoid fever in one community during the past six months, caused, I think, by the use of water from a well which had become infected by neglecting to disinfect the feces of one typhoid fever patient. The buildings of the county home are old, and should be replaced by new ones.

STOKES—Dr. W. L. McCanless, Danbury. Influenza in all parts.

SURRY—Dr. John R. Woltz, Dobson. Two cases of diphtheria. La grippe and pneumonia in all parts.

SWAIN—Dr. A. M. Bennett, Bryson City. La grippe in all parts, followed in some cases by pneumonia.

TRANSYLVANIA—Dr. M. M. King, Brevard. La grippe.

TYRRELL—No Board of Health.

UNION—Dr. J. E. Ashcraft, Monroe. Twelve cases of whooping cough. Catarrhal troubles in town and country. Pneumonia epidemic.

VANCE—Dr. J. H. Tucker, Henderson. A few cases of whooping cough and typhoid fever. La grippe, bronchitis and pneumonia in many sections.

WAKE—Dr. P. E. Hines, Raleigh. Influenza, bronchitis and pneumonia in parts heard from. Three cases of scarlatina. Dr. Cotton, of Morrisville, reports more sickness during February than he has ever known.

WARREN—Dr. Geo. A. Foote, Warrenton. One case of diphtheria. Grippe and pneumonia in mild form in many parts.

WASHINGTON—Dr. W. H. Ward, of Plymouth. One case of measles. La grippe, bronchitis and pneumonia in all parts. Only one physician has reported.

WATAUGA—Dr. W. B. Councill,

Boone. La grippe, of mild form, in all parts.

WAYNE—Dr. W. J. Jones, Goldsboro. Catarrhal troubles and pneumonia.

WILKES—Dr. J. M. Turner, Wilkesboro. La grippe in nearly all parts. No reports from other physicians for three months.

WILSON—Dr. N. Anderson, Wilson. Measles epidemic.

YADKIN—Dr. T. R. Harding, Yadkinville. La grippe in all parts.

YANCEY—Dr. J. R. Ray, Burnsville. Influenza in nearly all parts, with some pneumonia. The jail is very well kept, and has been improved some lately. The county home is fairly well kept.

Review of Diseases for February, 1897.

BRONCHITIS—From Carteret, Caswell, Chowan, Guilford, Halifax, Iredell, Perquimans, Rowan, Sampson, Vance, Wake, Washington and Wayne—13 counties.

DIPHTHERIA—From Catawba, Halifax, New Hanover, Rockingham, Surry and Warren—6 counties.

DISTEMPER, IN HORSES—From Bertie.

INFLUENZA—From Alamance, Alleghany, Ashe, Bertie, Bladen, Cabarrus, Caldwell, Chatham, Clay, Cleveland, Columbus, Cumberland, Dare, Davidson, Davie, Durham, Edgecombe, For-

syth, Franklin, Gaston, Granville, Greene, Halifax, Henderson, Hertford, Lincoln, Martin, Mitchell, Montgomery, New Hanover, Onslow, Orange, Pasquotank, Pender, Pitt, Polk, Randolph, Richmond, Robeson, Rockingham, Sampson, Stanly, Stokes, Surry, Swain, Transylvania, Vance, Wake, Washington, Watauga, Wilkes, Yadkin and Yancey—53 counties.

MALARIAL FEVER—From Catawba, Davidson, Edgecombe, Guilford, Halifax, Hertford, Lenoir, Northampton, Onslow and Rowan—10 counties.

MALARIAL FEVER, HEMORRHAGIC—From Catawba, Edgecombe, Halifax, Hertford, Northampton and Onslow—6 counties.

MALARIAL FEVER, PERNICIOUS—From Catawba and Lenoir.

MEASLES—From Catawba, Chatham, Chowan, Davie, Granville, Greene, Halifax, Orange, Pasquotank, Perquimans, Sampson, Washington and Wilson—13 counties.

MUMPS—From Clay, Davie, Gaston and New Hanover.

PLEURITIS—From Alleghany.

PNEUMONIA—From Alamance, Alleghany, Ashe, Bertie, Cabarrus, Caldwell, Carteret, Caswell, Chatham, Chowan, Columbus, Davidson, Durham, Gaston, Greene, Hertford, Iredell, Martin, Mitchell, Onslow, Orange, Pasquotank, Robeson, Sampson, Surry, Swain, Union, Vance, Wake, Washington, Wayne and Yancey—32 counties.

ROUP, IN FOWLS—From Cherokee.

SCARLATINA—From Beaufort, Caldwell, Durham, Iredell, New Hanover and Wake—6 counties.

TONSILLITIS—From Greene.

TYPHOID FEVER—From Alamance, Cabarrus, Caldwell, Catawba, Clay, Davidson, Franklin, Haywood, New Hanover, Richmond, Rowan, Stanly and Vance—13 counties.

WHOOPING COUGH—From Beaufort, Cabarrus, Caldwell, Catawba, Chatham, Cumberland, Davie, Granville, Lincoln, New Hanover, Orange, Perquimans, Randolph, Rowan, Sampson, Union and Vance—17 counties.

Summary of Mortuary Reports for February, 1897. (Twenty-seven towns.)

	White.	Col'd.	Total.
Aggregate population.....	88,172	62,213	150,385
Aggregate deaths.....	109	105	214
Representing annual death rate per 1000.....	14.8	20.2	17.1
<i>Causes of Death.</i>			
Typhoid Fever.....	1	1	2
Malarial fever.....	2	0	2
Diphtheria.....	0	1	1
Pneumonia.....	16	21	37
Consumption.....	27	21	48
Brain diseases.....	6	2	8
Heart diseases.....	6	7	13
Neurotic diseases.....	2	1	3
Diarrheal diseases.....	1	0	1
All other diseases.....	43	49	92
Accident.....	3	2	5
Suicide.....	1	0	1
Violence.....	1	0	1
	09	105	214
Deaths under 5 years.....	14	19	33
Still-born.....	6	12	18

Condition of Jails and County Homes by Counties for February, 1897.

COUNTIES.	JAIL.					HOME.				
	General Sanitary Condition.	Number Prisoners confined.	Space allotted each. (In cubic feet.)	Number giving evidence of successful vaccination.	Number who can read and write.	General Sanitary Condition.	Number inmates.	Space allotted each. (In cubic feet.)	Number giving evidence of successful vaccination.	Number who can read and write.
Alamance.....		31 (a)					27			
Alexander	very good	0				very good	9			2
Alleghany.....		7					7			
Anson										
Ashe		4					10			
Beaufort	good	7				good	12			
Bertie	very good	17 (b)			6	very good	13		2	3
Bladen	very good	1				good	4			
Brunswick ..	no change	2	*	0	1	no change	9	*	0	0
Buncombe ..	no change	93 (c)	662	20	75	no change	46	639	19	17
Burke.....	no change	14				no change	17			
Cabarrus	good	43 (d)	*	7	12	good	26	*	14	12
Caldwell.....	†	4	*	0	3	good	5	*	0	3
Camden										
Carteret.....	†	0					0			
Caswell	fair	2				fair	28			
Catawba	†	15	476	6	8	†	38	720	17	20
Chatham	good	4		0	1	good	22		0	3
Cherokee	no change	4				no change	4			
Chowan	well kept	4	*		0	well kept	6	*	2	0
Clay	good	0					0			
Cleveland ...	good	20	1,000		12	good	14	900		4
Columbus ...	good	7	*		7	good	6	*		1
Craven		14	600				25	*		
Cumberl'nd ..	very good	17				very good	16			
Currituck ..										
Dare		1								
Davidson....	very good	7				very good	28			
Davie	no change	5		0	4	no change	7		1	0
Dublin.....										
Durham	very good	37 (e)	*			very good	19	*		
Edgecombe ..		8			3		23			10
Forsyth.....	good	6	1,000	2	3	good	24	*	7	8

* Space exceeds 1,000 cubic feet. † See Summary of Reports from County Superintendents of Health. (a) Includes 15 in House of Correction. (b) Includes 11 in House of Correction. (c) Includes 64 in House of Correction. (d) Includes 39 in House of Correction. (e) Includes 29 in House of Correction.

Condition of Jails and County Homes by Counties.—CONTINUED.

COUNTIES.	JAIL.					HOME.				
	General Sanitary Condition.	Number Prisoners confined.	Space allotted each. (In cubic feet.)	Number giving evidence of successful vaccination.	Number who can read and write.	General Sanitary Condition.	Number inmates.	Space allotted each. (In cubic feet.)	Number giving evidence of successful vaccination.	Number who can read and write.
Franklin	no change	1	*			no change	20	*		
Gaston	good					good				
Gates										
Graham										
Granville		5					31			
Greene	good	4	600	0	4	good	8	1,000	4	2
Guilford	good	78 (a)				good	41			
Halifax		30		6	5		47		15	13
Harnett										
Haywood	excellent	6		2	6	excellent	7			2
Henderson	good	8	*			good	3			
Hertford	no change	3	*	0	0	no change	10	*	2	2
Hyde										
Iredell	no change	34 (b)	500			no change		25		
Jackson	bad †	2	300		1		3	510		1
Johnston		4	*				11	*		
Jones										
Lenoir	better									
Lincoln	good	5	*	0	2	good	23	600	10	6
McDowell		10					12			
Macon										
Madison										
Martin	no change	5	*	0	2	no change	22	*	5	4
Mecklenburg		137 (c)					62			
Mitchell	†	15					6			
Montgomery	very good	5	500			very good	17	500		
Moore										
Nash										
New Hanover		45 (d)	300	9	34	†	25	*	20	6
Northampton	good	6	1,000	0	2	good	28	900	10	8
Onslow	vy good †	4				very good	5			
Orange	not good	7	500	3	5	good	24	1,000	14	7
Pamlico										

* Space exceeds 1,000 cubic feet. † See Summary of Reports from County Superintendents of Health. (a) Includes 62 in House of Correction. (b) Includes 27 in House of Correction. (c) Includes 99 in House of Correction. (d) Includes 15 in House of Correction.

Condition of Jails and County Homes by Counties.—CONTINUED.

COUNTIES.	JAIL.					HOME.				
	General Sanitary Condition.	Number Prisoners confined.	Space allotted each, (in cubic feet.)	Number giving evidence of successful vaccination.	Number who can read and write.	General Sanitary Condition.	Number inmates.	Space allotted each, (in cubic feet.)	Number giving evidence of successful vaccination.	Number who can read and write.
Pasquotank.....		2	*	0	1		30	*	0	1
Pender.....	†	0					4			
Perquimans.....										
Person.....		0				good	13		12	2
Pitt.....	good	10	*		2	good	33	1,000		2
Polk.....	good	4	*	1	2					
Randolph.....	no change	8	*		6	no change	36			8
Richmond.....	fair	17	*	0	12	fair	27	*	0	4
Robeson.....	good	3				good	12			
Rockingham.....		5	*				24	750		
Rowan.....		23	425	7	10		22	525	8	7
Rutherford.....		5					16			
Sampson.....	good	4				good	26			
Stanly.....	good	4	*	0	2	†	8	*	0	1
Stokes.....	good	8	600	1	0	good	13	600	3	4
Surry.....		12 (a)	320		6		21			3
Swain.....		5		0	5		4		1	0
Transylvania.....		2	*	0	2		4	*	0	0
Tyrrell.....										
Union.....	good	4				good	30			
Vance.....	no change	5	*	0	0	no change	17	*	2	2
Wake.....	good	75 (b)				good	68			
Warren.....	good	0				good	24		0	3
Washington.....	good	5	850	1	3	good	5	*	1	1
Watauga.....	good	4				good	10			
Wayne.....		10					14			
Wilkes.....		9					11			
Wilson.....	excellent	3				excellent	20			
Yadkin.....	fair	1		0	0	fair	27		0	5
Yancey.....	†	2	*	0	2	†	3			

* Space exceeds 1,000 cubic feet. † See Summary of Reports of County Superintendents of Health. (a) Includes 1 in House of Correction. (b) Includes 58 in House of Correction.

Mortuary Report for February, 1897.

TOWNS AND REPORTERS.	RACES.	POPULA- TION.		TEMPORARY ANNUAL DEATH RATE PER 1,000.		Typhoid Fever.	Scarlet Fever.	Malarial Fever.	Diphtheria.	Whooping Cough.	Measles.	Pneumonia.	Consumption.	Brain Diseases.	Heart Diseases.	Neurotic Diseases.	Diarrheal Diseases.	All Other Diseases.	Accident.	Suicide.	Violence.	TOTAL DEATHS.			
		By Races.	Total.	By Races.	Total.																	By Races.	By Towns.	Deaths under 5 years.	Still Born.
Asheville.....	White.	8,000		22.5								10		1				1		1	15	0	15		1
Dr. E. C. Starnes.	Colored.	4,000	12,000		15.0																0	15			
CHARLOTTE.....	White.	10,855		16.8		1						3									15	9	24	3	1
C. A. Spratt, H. Off'r	Colored.	8,796	19,651	12.3	14.6							1	3					5	1			24	3	1	
Durham.....	White.	4,000		15.0								1			1			3			5	5	7	2	
Dr. J. M. Manning.	Colored.	2,000	6,000	12.0	14.0																2	7	2		
FAYETTEVILLE.....	White.	3,500		3.4											1						1	3		1	
Dr. J. V. McGowan.	Colored.	2,500	6,000	9.6	6.0																	3			
GOLDSBORO.....	White.	3,600		13.3									1					3			4	10			
T. H. Bain, Sec. B. H.	Colored.	2,000	5,600	36.0	21.4							3	1								6	10			
GREENSBORO.....	White.	5,500		15.3				1				1	1	1				3			7	15	2		
J. S. Michaux, City Clk	Colored.	2,500	8,000	27.4	22.5									1	1			4			2	15	2		1
HENDERSON.....	White.	2,250		16.0				1					1					1			3	9	1		
Dr. W. J. Judd.	Colored.	2,000	4,250	36.0	25.4									1	1			3	1		0	0			
HILLSBORO.....	White.	400		0.0																	0	0			
Dr. D. C. Parris.	Colored.	500	700	0.0	0.0																0	0			
LENOIR.....	White.	800		0.0																	0	0			
Dr. A. A. Kent.	Colored.	300	1,100	0.0	0.0																0	0			
MARION.....	White.	750		32.0														1	1		2	0			
Dr. G. I. White.	Colored.	250	1,000	0.0	24.0																0	2			
MONROE.....	White.	1,800		6.6								1									1	2			
Dr. J. M. Blair.	Colored.	600	2,400	20.0	10.0													1			1	2			
OXFORD.....	White.	2,500		9.6														2			2	3	1		
Dr. T. L. Booth.	Colored.	1,000	3,500	12.0	10.3																1	3	1	1	
RALEIGH.....	White.	7,200		11.7								2	1	2				1	1		7	16	1	1	
T. P. Sale, Clerk B. H.	Colored.	6,000	13,200	18.0	14.5							2	3	1				2	1		2	16	1	1	
ROCKINGHAM.....	White.	1,200		18.5										1				1			2	3			
Dr. W. H. Steele.	Colored.	450	1,750	2.7	21.1							1									1	3			
ROCKY MOUNT.....	White.	1,600		0.0																	0				
Dr. G. L. Wimberley.	Colored.	1,000	2,600	24.0	9.2								1					1			2	2			
SALEM.....	White.	3,942		18.2								1	1					4			6	0	6	1	1
S. C. Butler, H. Off'r.	Colored.	342	4,284	0.0	16.8																0	6			
SALISBURY.....	White.	3,500		17.1								1	2					2			5	10			
Dr. John Whitehead.	Colored.	1,500	5,000	40.0	24.0							1	1					3			5	10			
SCOTLAND NECK.....	White.	775		15.5														1			1	0			
Mayor J. A. Perry.	Colored.	425	1,200	0.0	10.0																0	1	0		
SOUTHPORT.....	White.	800		30.0									1	1							2	2			
E. B. Stevens, City Cl'k.	Colored.	400	1,200	0.0	20.0																0	2			
Statesville.....	White.	2,500		0.0																	0	0			
Dr. W. J. Hill.	Colored.	1,000	3,500	0.0	0.0																0	0			
TARBORO.....	White.	1,200		10.0								1									1	4			
Dr. L. L. Staton.	Colored.	1,300	2,500	27.7	19.2																3	4			
WARRENTON.....	White.	1,060		0.0																	0	0			
Dr. Geo. A. Foote.	Colored.	500	1,500	0.0	0.0																0	0			1
WASHINGTON.....	White.	3,000		12.0										1				2			3	4	7		
Dr. Joshua Tayloe.	Colored.	2,500	5,500	19.2	15.3								2		1			1			4	7			
WELDON.....	White.	700		31.3														2			2				
Mayor J. T. Gooch.	Colored.	750	1,450	16.0	24.8																1	3			
WILMINGTON.....	White.	9,000		20.0								1	4	1	1			6	1		1	15	47	1	
Dr. J. C. Shepard.	Colored.	13,000	22,000	29.5	25.6	1		1				6	4	3				17			32	47	8	6	
WILSON.....	White.	2,500		14.4									1								3				
Dr. N. Anderson.	Colored.	2,000	4,500	6.0	10.7													1			1	4			
WINSTON.....	White.	5,200		16.1								4	2	1							12	19	2	1	
Dr. John Bynum	Colored.	4,800	10,000	30.0	22.8							4	2	1	1			5			12	19	2	1	

N. B. The reporters for the cities and towns printed in large type have signed this certificate "I hereby certify that this report gives the whole number of deaths occurring within the corporate limits during the above month." *All from old age—70, 81 and 94 years.

METEOROLOGICAL SUMMARY FOR NORTH CAROLINA, FEBRUARY, 1897. Furnished by the North Carolina Section of the Climate and Crop Service. C. F. VON HERRMANN, DIRECTOR.

STATIONS.	TEMPERATURE, (DEGREES FAHR.)									Total Precipitation. (in inches)	NO. OF DAYS.				Prevailing Wind.
	Monthly Mean.	Highest.	Date.	Mean Maximum.	Lowest.	Date.	Mean Minimum.	Monthly Range.	Mean Daily Range.		Clear.	Partly Cloudy.	Cloudy.	Rainy.	
Asheville.....	41.2	72	18 22	51.8	14	28	30.5	58	21.3	6.35	14	9	5	7	S
Beaufort.....	51.1	69	14	59.7	30	28	42.5	39	17.2	6.50	8	4	16	11	SW
Charlotte.....	46.4	74	22	54.8	25	28	38.1	49	16.7	5.44	11	6	11	13	S
Chapel Hill.....	43.3	76	22	53.0	22	1 28	33.6	54	19.4	5.66	13	4	11	13	SW
Horse Cove.....	42.5	68	18	50.5	14	27	34.5	54	16.0	9.66	9	6	13	9	NW
Henderson.....	42.8	73	18	53.9	22	28	35.8	51	18.1	4.92	7	9	12	13	N
Littleton.....	42.7	73	18	53.2	20	28	32.2	53	21.0	5.60	8	5	15	13	NE
Louisburg.....	44.8	75	22	54.8	20	28	34.7	55	20.1	4.90	.....	.....	.....	9	.....
Lenoir.....	42.5	72	22	50.0	18	28	35.6	54	14.4	8.35	13	5	10	8	NE
Monroe.....	46.2	76	22	56.4	20	28	36.1	56	20.3	5.85	13	0	15	10	SW
Morganton.....	39.0	70	18	50.5	16	28	32.3	54	18.2	7.27	.....	.....	.....	6	.....
Mt. Airy.....	41.6	71	18	51.5	16	28	31.6	55	19.9	6.93	10	11	7	7	SW
Mocksville.....	46.5	74	17 21	57.0	20	28	36.0	54	21.0	4.80	8	11	9	12	N SW
Newbern.....	52.6	77	23	60.4	32	28	44.7	45	15.7	4.12	.....	.....	.....	10	.....
Oak Ridge.....	42.9	71	22	53.0	20	28	32.8	51	20.2	5.12	13	2	13	9	SW
Pittsboro.....	43.0	75	22	52.0	16	28	34.1	59	17.9	5.61	11	6	11	8	NW
Raleigh.....	46.1	75	22	54.8	25	28	37.4	50	17.4	4.42	9	7	12	11	SW
Roxboro.....	41.8	71	18 a	51.6	18 b	25	32.0	53	19.6	5.92	12	4	12	10	.....
Rockingham.....	48.4	80	18	59.1	23	1	37.6	57	21.5	6.55	16	1	11	8	N E
Southport.....	51.2	70	14	59.0	27	28	43.5	43	15.5	5.44	6	9	13	10	NE
Salisbury.....	46.8	74	22	57.8	22	28	35.7	52	22.1	4.61	.....	.....	.....	5	.....
Selma.....	46.2	75	22	54.9	25	28	37.4	50	17.5	6.55	.....	.....	.....	7	.....
Saxon.....	43.0	71	18	52.2	14	28	33.7	57	18.5	6.28	8	8	12	10	NW
Tarboro.....	45.4	76	18 22	56.8	19	28	34.0	57	22.8	4.61	13	2	14	11	NW
Weldon.....	44.0	72	18	53.1	21	28	35.0	51	18.1	5.47	12	8	8	12	S NW
Wilmington.....	52.0	77	23	60.2	30	28	43.8	47	16.4	6.26	10	7	11	11	NE

State Meteorological Summary for February, 1897.

Mean barometer 30.09 inches; normal for February 30.13. Highest barometer 30.68 on the 18th at Raleigh. Lowest barometer 29.41 on the 21st at Hatteras. Mean temperature 45.1 degrees; normal for February 43.6. Highest temperature 80 on the 18th at Rockingham. Lowest temperature 9 on the 28th at Highlands and Linville. Average rainfall 5.90 inches; normal for February 4.27 inches. Greatest monthly rainfall 10.23 inches at Linville; least monthly rainfall 3.40 inches at Spring Hope. Average number of clear days 10; partly cloudy 6; cloudy 12; rainy 10. Prevailing wind direction Southwest. Average hourly velocity 8.3 miles per hour. Normal direction for February Southwest; normal velocity 9.3 miles per hour.

